INDEPENDENT FOREST AUDIT OF THE BLACK RIVER FOREST

2001 – 2006

FEBRUARY, 2007

Prepared for

Ontario Ministry of Natural Resources

By

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1 EXECUTIVE SUMMARY

An independent audit of the Black River Forest was conducted during July, 2006 by a four-person audit team. The audit contract was issued to David Barker & Associates Ltd. The audit team members were David Barker, lead auditor; Fred Dewsberry, planning auditor; Rob Foster, biologist auditor; and Bill Murphy, operations auditor.

Great West Timber Limited (the Company) is the holder of the Sustainable Forest Licence (SFL) #542002. Ministry of Natural Resources was also an auditee with respect to oversight in planning, compliance monitoring, forest values inventory and management of public participation in forest management activities. The Company's personnel from Thunder Bay and Manitouwadge, MNR Wawa District, Manitouwadge Area and Corporate staff, Forestry Futures representatives, and representatives of the Manitouwadge Public Consultation Committee, (also called the Local Citizens Committee (LCC)) participated.

The purposes of the audit were to assess compliance of planning and management against provincial requirements, to compare planned and actual forest management activities and to evaluate effectiveness of the forest management activities in achieving management objectives.

The audit examined plans and operations for the five-year period ending March 31, 2006. The audit consisted of an evaluation of two forest management plans (FMPs), an analysis of the Comparison and Trend Analysis of Planned versus Actual Forest Operations Report (Trend Analysis Report) on planned vs. actual activities, a field review of operational activities, and an assessment of conformance with the eight principles shown in the 2006 Independent Forest Audit Process and Protocol (IFAPP). A pre-audit meeting was held and the audit plan was prepared and followed.

The Black River Forest is in the boreal forest region, east, north and south of Manitouwadge. The Black River flows through the centre of the Forest from northeast to southwest. The Forest has rolling terrain with a section in the southwest corner near Lake Superior with steep, rocky and broken ground. The main drainage is to the southwest, although a few streams flow to the north (Arctic drainage). The Forest has generally good road access.

The results of the audit are described in each of the eight IFAPP sections. Overall, forest management planning and operations are effective and compliant. There are 11 recommendations and 16 suggestions to improve forest management on the Forest. One best practice is described.

The audit team noticed the obvious commitment of the MNR and the Company. There was a Company forest management policy that was understood by staff and operators. MNR had well-understood direction and policy. Most other forests managed by the Company were operated under an environmental management system based on the ISO 14001 international standard and the Company plans to register this Forest.

The auditors saw that the public had been informed and engaged during planning and operations on the Forest. There was a Local Citizens Committee (LCC), appropriately formed and its work and input to the MNR and Company conformed to Ontario policy and requirements. Stakeholders were consulted during planning and operations, their opinions were heard and they influenced forest management. Recommendation 1 discusses the need for MNR to provide realistic funding and clarification for the LCC roles is suggested.

There are two First Nation communities adjacent to the Forest. Ojibways of Pic River First Nation had an overlapping licence that was managed by the Pic River Development Corporation. Pic Mobert First Nation had no forest management licence. Both groups were represented on the planning team for the 2006 FMP. The MNR, supported by the Company, promoted local First Nations' residents in planning and in economic activities such as silviculture and logging employment.

The 2001-2021 Black River Forest Management Plan was in effect during the audit period and the 2006-2026 FMP was being prepared. The 2001 plan had the required content, was approved, and signed appropriately. The 2006 plan was prepared in conformance with requirements. The team gave two recommendations directed towards MNR to improve values collection and prepare a cost effective rapid assessment technique for determining thermal regimes in watercourses. A third recommendation was for MNR and Company joint training around management of ephemeral streams. A suggestion for MNR was made regarding addressing habitat requirements for priority bird species and a second was directed to the Company to communicate results of the fieldwork of the Swede Valley road layout. Annual work schedules were prepared, approved, and met requirements.

Operations on the forest were conducted to protect Areas of Concern (AOC). Harvesting was carried out with few or no adverse effects. The team noted hardwood utilization increased over the period and snag management was implemented. A recommendation was directed to the Company to improve slash management.

Depleted areas were being renewed. The audit showed that renewal, tending and protection activities were being carried out effectively. Two suggestions were given: one for the Company to assess recently harvested black spruce leave strips to determine the potential for brush competition; the second to assess the 1980's-seeded Bracke scarification for tending.

Road construction, maintenance and abandonment were carried out effectively. Minor sedimentation events were noted and a suggestion was made that the Company reduce road sediment going into streams. A Company best practice was noted regarding the use of long skids, which reduced non-productive road area.

Staff in both MNR and the Company were well trained and competent to perform their work. Two suggestions were made: one to both organizations to improve communication around compliance determinations and a second to the MNR to improve communication strategy regarding biologist information. Documents were being controlled. A suggestion was made to the MNR to sign the next LCC terms of reference.

The monitoring system was materially effective. The MNR and Company monitored and reported on operations and the MNR reviewed and dealt with non-compliances. Company monitoring plans were developed and inspection levels materially conformed to what was needed. However, the MNR did not document some renewal, tending and free-to-grow (FTG) inspections. A recommendation to MNR was given to determine realistic monitoring levels and meet these. A suggestion was given to MNR and Company to have more joint site visits. New road construction and maintenance was monitored. A suggestion was directed to both the MNR and Company to determine responsibility for monitoring old culverts.

The Company conducted renewal compliance inspections, and surveyed 8900 ha of free-to-grow areas. Suggestions were given to MNR about improving forest inventory stand boundary and size standards and that the MNR and Company jointly design a FTG survey to improve assessment on SB1 lowland sites. Annual reports (AR) and the 1996-2001 Report of Past Forest Operations (RPFO) were materially prepared according to requirements. Both MNR and Company should improve annual reporting timeframes and the Company should correct errors and report on the effectiveness of natural regeneration prescriptions. A recommendation was given to the Company to report natural regeneration annually, rather than at the end of the five year period. The MNR should ensure annual reporting of natural prescriptions is conducted and provide better training. A comment was made about the lack of a table showing clearcut size and frequency in the 1996-01 RPFO. This was corrected in the Year Ten Annual Report.

The Trend Analysis Report was prepared according to requirements. The audit team reviewed this and found that it accurately reflected trends in the state of the Forest. Reasonable conclusions were made. Two suggestions to MNR in reporting of First Nations in planning and operations and to include the Trend Analysis Report as part of Provincial monitoring policy are given. The 1996-2001 RPFO substantially met requirements. The audit team concurred with the Company's sustainability conclusion.

The SFL obligations were materially carried out. Two recommendations are given, one for the Company to pay outstanding charges for the 2005-06 year and the second to enter into a Memorandum of Agreement with Levesque Plywood for wood deliveries.

The Black River Forest was well managed by the MNR and the Company. Forest management objectives were, for the most part, achieved and where they were not, reasons for this were adequately described. The audit of FMPs and the field audit of plan implementation and operations showed overall compliance and effectiveness.

The audit team was satisfied that the MNR and the Company complied in all significant respects with the applicable acts, regulations, government policies, the two FMPs, and other requirements in effect during the 2001-2006 audit period, with some exceptions noted. The audit team believes that the MNR's and the Company's planning and operations on the Black River Forest during the audit period were being managed in a sustainable manner.

The audit team recommends that the Black River Forest SFL #542002 be extended for a further five-year term.

2 INTRODUCTION

2.1 AUDIT PROCESS

2.1.1 Overview

The purpose of this report is to describe the independent forest audit of the Black River Forest carried out during the summer and fall, 2006. David Barker & Associates Ltd. was awarded the contract to plan, conduct and report on the audit. A four-person team of auditors conducted the audit. The auditees were the Ministry of Natural Resources (MNR), Great West Timber Limited (Company) which is the holder of the Sustainable Forest Licence (SFL) 542002 and Pic River Development Corporation (PRDC), which is an overlapping licensee[1].

There were changes to the SFL document since the initial signing during 1996 (Table 1).

TABLE 1: HISTORY OF THE SFL DOCUMENT

SFL Subject	Date Amended or Executed	Term
First signing by the Minister of Natural Resources	March 21, 1996	April 1, 1996-March 31, 2016
Withdrawal of Ontario Lands for Life areas	January 22, 2001	No change
Deletion of Section 5, changes to reflect agreements for the NAVI program[2], SFL content changes, map of the area	March 18, 2004	No change
New SFL document signed by the Minister of Natural Resources	March 31, 2006	April 1, 2001-March 31, 2021

The audit period was from April 1, 2001 to March 31, 2006 and included all planning, monitoring, and operations that occurred during this period. A previous audit took place during 2001. The 2006 audit began with planning starting in April, 2006 and was completed when the final report was delivered during January, 2007.

2.1.2 Purpose and Objectives

The purpose of this audit was to assess whether the Black River Forest was managed on a sustainable basis by:

1. Assessing the compliance of the 2001 and 2006 Forest Management Plans[3] (FMP) with the 1996 Forest Management Planning Manual, the 2004 Forest Management Planning Manual, (both described here as FMPM), the Crown Forest Sustainability Act (CFSA), and other requirements in effect at the time, such as Ontario policy and guidelines.

[1] This is a common term for forest resource licensees within a SFL.

[2] NAVI- The Northern Aspen Veneer Initiative was started during 2001. Supply Agreement 536233 was reached between Levesque Plywood and the MNR on December 5, 2005; subsequently this agreement was referenced in Appendix E of the SFL document.

[3] The audit reviewed the planning process and content for the latest approved forest management plan (2006 FMP) and the five years of the 2001 FMP as detailed in the MNR's instructions to auditors: Planning requirements-2006 audits FMP FESS mar10_06.doc

2. Analysing the extent of compliance of management activities with the 2001 FMP, Annual Work Schedules (AWS), the manuals created under the CFSA, and the relevant guides.
3. Comparing planned versus actual forest management activities.
4. Reviewing the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit.
5. Assessing the effectiveness of forest management activities in achieving management objectives.
6. Determining a licensee's compliance with the terms and conditions of the forest resources licence.

In order to achieve this purpose, the 2006 Independent Forest Audit Process & Protocol (IFAPP) (Feb. 2006) was used. This contained the criteria under which the audit was conducted and assessments that were carried out in order to give an opinion on the sustainability of the Black River Forest.

2.1.3 Eight Principles of the Audit Protocol

The IFAPP outlined the principles, criteria and audit procedures to be followed. There are eight guiding principles in the audit protocol as shown below. Each principle may have several criteria against which the Company and the MNR were audited. If all of these criteria were met in an acceptable manner, then the principle was achieved. These principles are:

- *Commitment*
- *Public Participation*
- *Forest Management Planning*
- *Plan Implementation*
- *System Support*
- *Monitoring*
- *Achievement of the Management Objectives and Forest Sustainability*
- *Contractual Obligations*

More details for each of the principles can be found in Appendix C.

2.1.4 Audit Scope

The audit covered the Black River Forest, which had been managed as a SFL for the last ten years. Two management plans were assessed during the audit period. The principal one was the April 1, 2001 to March 31, 2021 Forest Management Plan (FMP) and the 2006-2026 FMP was the second (Table 2). For the remainder of this report, the two plans are referred to as the 2001 and the 2006 FMP.

TABLE 2: MANAGEMENT PLANS AUDITED

Plan Name	Scope Audited
Black River Forest 2001-2021 Forest Management Plan (2001 FMP)	Content and operational planning from April 1, 2001 to March 31, 2006
Black River Forest 2006-2026 Forest Management Plan (2006 FMP)	Plan preparation during 2004 to MNR approval April 1, 2006. Content of the plan.

During the audit period, standards of forest management continued to evolve. The Forest Management Planning Manual (FMPM) was amended during 2004 and the 2001 Forest Information Manual (FIM) standards were implemented. These new standards were adopted during the preparation of the 2006 FMP.

The Company had overall management responsibility for the license, with oversight by MNR. Besides the Company and MNR, the PRDC (the only overlapping licensee) was responsible for some forest management activities such as roads and harvesting.

2.1.5 Audit Team Members

A multi-disciplinary four-person team completed the audit. The team had experience in forest management, operations and forest ecology and had the following responsibilities:

- David Barker, MSc. R.P.F., (British Columbia, Ontario) CEA (SFM), lead auditor, harvest and road review, public and First Nations input.
- Fred Dewsberry, BSc.F R.P.F., (Ontario), forest management and operations planning.
- Robert Foster, Ph.D. Biologist, Areas of Concern, road crossings.
- Bill Murphy, BSc.F R.P.F., (Ontario), silviculture, compliance and operations planning.

Individual auditor responsibilities for conducting field reviews, interviews, and assessing records were described in the Black River Audit Work Plan, June, 2006. The combination of forestry, biology, operations, planning, and auditing experience enabled multi-disciplinary interactions between the audit team, the Company and MNR. More details on audit team members are in Appendix B.

2.1.6 Process

The audit was conducted using the 2006 IFAPP developed by Corporate MNR. This protocol described the procedures to be carried out and gave guidance to auditors in evaluating the eight principles found in the IFAPP.

Recommendations, suggestions and best practices evolved from conducting the audit using guidance in the IFAPP. Recommendations arose from material[4] nonconformances, non-compliances or a critical lack of effectiveness in forest management activities. There was one

[4] Substantial, important and relevant. Also significant.

exception to this meaning of recommendation. If the audit team found that all significant requirements were met and IFAPP principles were achieved, a recommendation may be given to extend the SFL.

Suggestions might be described where material conformance had occurred, but improvements in particular aspects of forest management could be made. Best practices were given where exceptional methods were used or results were achieved over and above normal expectations.

The audit was conducted according to the procedures described in the Black River Audit Work Plan, June 2006. This plan described a sampling approach to the audit. There was a sample target of auditing 15% of the forest management activities carried out during the five-year term, which was substantially exceeded. In addition, within the total renewal and tending assessment, 45% of the areas identified within the KPMG 2005 Specified Procedures Report[5] were sampled (See Table 3 in Section 2.1.6.1).

2.1.6.1 Planning

Planning the audit included conducting on-site planning visits, preparing an audit plan and holding a pre-audit meeting.

The draft audit plan was prepared which described the process, including:

- Finalizing the scope.
- Defining and quantifying audit field components, such as area harvested, length of road constructed and area of silviculture activities for the five years.
- A field sample strategy.
- A schedule and logistics of the field audit and the report.

At the beginning of the audit planning period, the lead auditor went to the Company offices in Thunder Bay and Manitouwadge and the MNR office in Manitouwadge. Preliminary planning and the commencement of audit sample selection took place. The lead auditor, Company and MNR staff reviewed audit procedures, audit roles and discussed the status of available documents. During this period, discussions were held with the chairman of the Manitouwadge Public Consultation Committee (hereinafter called the Local Citizens Committee (LCC)) and interviews began with the public, including stakeholders.

A pre-audit meeting was held June 15, 2006 in Manitouwadge with representatives from the Company, MNR District, Northeast Region, Forest Management Branch, Forestry Futures Committee (FFC) and the LCC). During this period, the lead auditor continued with interviews of LCC members and representatives of two nearby First Nations communities.

During that pre-audit meeting week, sample selection continued. First, the renewal blocks within the KPMG 2005 Specified Procedures Report were selected. Next, harvest

[5] KPMG. 2005. Specified procedures report on compliance with the Forest Renewal Trust Agreement. (KPMG 2005 Specified Procedures Report)

samples were chosen followed by roads and the remaining renewal and free-to-grow (FTG) blocks. Harvest blocks were selected to maintain geographical distribution, to ensure that the blocks included the Cache Lake blocks (PRDC blocks), that they included a variety of forest units, and were associated with a variety of Areas of Concern (AOC).

Road samples were chosen based on the presence of stream crossings and their proximity to selected harvest blocks (e.g. the Cache Lake block was chosen because it had additional road construction to be sampled). Renewal and tending blocks were selected, where possible, on the basis of whether silviculture operations had been completed. Blocks were chosen to sample the status of FTG. Additional blocks were selected where needed to meet the 15% targets in the draft audit plan. Subsequently, the final audit plan was published.

A summary of the audit sample intensity on the Black River Forest is shown in Table 3.

TABLE 3: AUDIT SAMPLE SUMMARY

Sample category	Sample numbers	Total Activity Population*4 (2001 – 2006)	Percentage Sampled
Harvesting (ha *1)	3,160	8,000	40%
New primary access (km)	2	2	100%
New Bridges (# *2)	1	1	100%
AOC features (# *3)	140	350	40%
Renewal during the audit period (ha)			
Planting	792	1,595	50%
Natural prescriptions	400	5,865	7%
Total planting and natural	1,192	7,460	16%
Mechanical site preparation	721	963	75%
Chemical site preparation/tending	616	3,537	17%
Subtotal renewal	**2,529**	**11,960**	**21%**
Forest Renewal Trust, specified procedures report-planting/tending work (ha)	355	793	45%
Forest Renewal Trust, specified procedures report-slash pile fluffing (ha)	494	494	100%
Free-to-grow (planted and natural ha)	1,840	8,926	21%
Natural renewal (ha) (blocks depleted previous to the audit period and reported during the audit period)	980	5,006	20%

*1 Gross ha for samples, planned ha for total activity population for harvesting, roads and AOCs. Actual ha for renewal.
*2 At least 36 new crossings were reviewed for construction and where appropriate, abandonment, which included removal of portable bridges or snow/log crossings. During planning, the team chose harvest sites with a greater number of culverts 1000 mm and larger. The total population of all crossings is unknown. Assuming that the proportion of culverts inspected per hectare of sample harvest block holds for the entire harvest population, the audit team could say with confidence that during the audit, more than 15% of all crossings were reviewed, meeting the target in the audit plan.
*3 Data in the table relate to only harvesting and roads; more were assessed during renewal audits as AOC buffers were encountered. It is assumed that AOC buffers chosen fairly reflected the total population. The total population statistic is an estimate from the AOC average numbers per harvest and road sample, rather than counting every one.
*4 Data for the estimate of population came from the annual reports from 2001-05, the 2001 FMP and an estimate for 2005-06.

During both the audit planning and field audit, public input was solicited through advertising, direct mail and targeted interviews. Public-related interviews were held with trappers, LCC members, representatives of aboriginal groups and the general public.

In addition to maintaining geographic distribution and achieving the sample percentage targets, the audit focused on areas with potential environmental impact. Particular attention was paid to stream crossings during the selection and review of the road samples.

A request was made by the MNR to include additional samples for natural regeneration success on the SB1 Forest Unit (FU) on areas older than ten years. These samples were to be chosen where possible within the wetter site types. Four areas were chosen using the geographical information system (GIS) query function and these were field reviewed.

2.1.6.2 Field Audit

The field audit was carried out from July 3-10, 2006. As noted, the audit team consisted of four resource professionals (Section 2.1.5). They were accompanied by MNR, Company staff, a representative of the LCC, and two representatives of the Forestry Futures Committee (FFC). Figure 2 in Section 2.2.1 shows sample locations. Interviews were held with the principal contractor, timber commitment holders, the overlapping licensee, and additional members of the LCC.

Specific audit activities included:

- Reviewing field samples with MNR staff, Company staff and a representative of the LCC.
- Conducting interviews with Company, MNR staff, LCC members and the public; interviews with MNR staff were held in person in Manitouwadge, and by phone with Wawa District staff.
- Examining records, plans, reports and notes.
- Identifying findings and best practices.
- Presenting the preliminary findings and best practices at an exit meeting.

The field audit also consisted of office reviews to verify records and field checks conducted either by helicopter, truck, or on foot.

2.1.6.3 Reporting

Audit reports were prepared using an iterative process: a draft report (August, 2006), a second draft in October, a draft final report and the final report. Reviews of all but the final report were carried out by the Company, MNR (District, Region and Corporate) and the FFC. Two meetings/ teleconferences were convened during September and November at which all required parties attended.

2.2 FOREST MANAGEMENT CONTEXT

2.2.1 Location of the Black River Forest

The Black River Forest is entirely within the MNR's Wawa administrative District, in the Northeast administrative Region. The only town in the Forest is Manitouwadge, a small community based on forestry, mining and outdoor tourism. The MNR's Wawa District has an Area office in Manitouwadge and the Company office is three kilometres to the east of Manitouwadge centre. There are three working mines in the southern part of the forest and two mines (in restoration) just north of Manitouwadge. One of the southern mines is currently in the process of closing.

There are no First Nations communities situated within the Forest; however there are two nearby: The Ojibways of Pic River First Nation have a village just outside the southwest corner of the Forest and Pic Mobert First Nation has a village at Mobert, near White River. The Constance Lake First Nation claims an interest in part of the Black River Forest. This group lives about 120 km northeast of Manitouwadge.

Figure 1 shows an overview map of the forest while Figure 2 gives more detailed information such as lakes, roads, and audit sample locations.

FIGURE 1: OVERVIEW MAP OF THE BLACK RIVER FOREST

BLACK RIVER FOREST
UNIT MAP

GREAT WEST Timber LIMITED

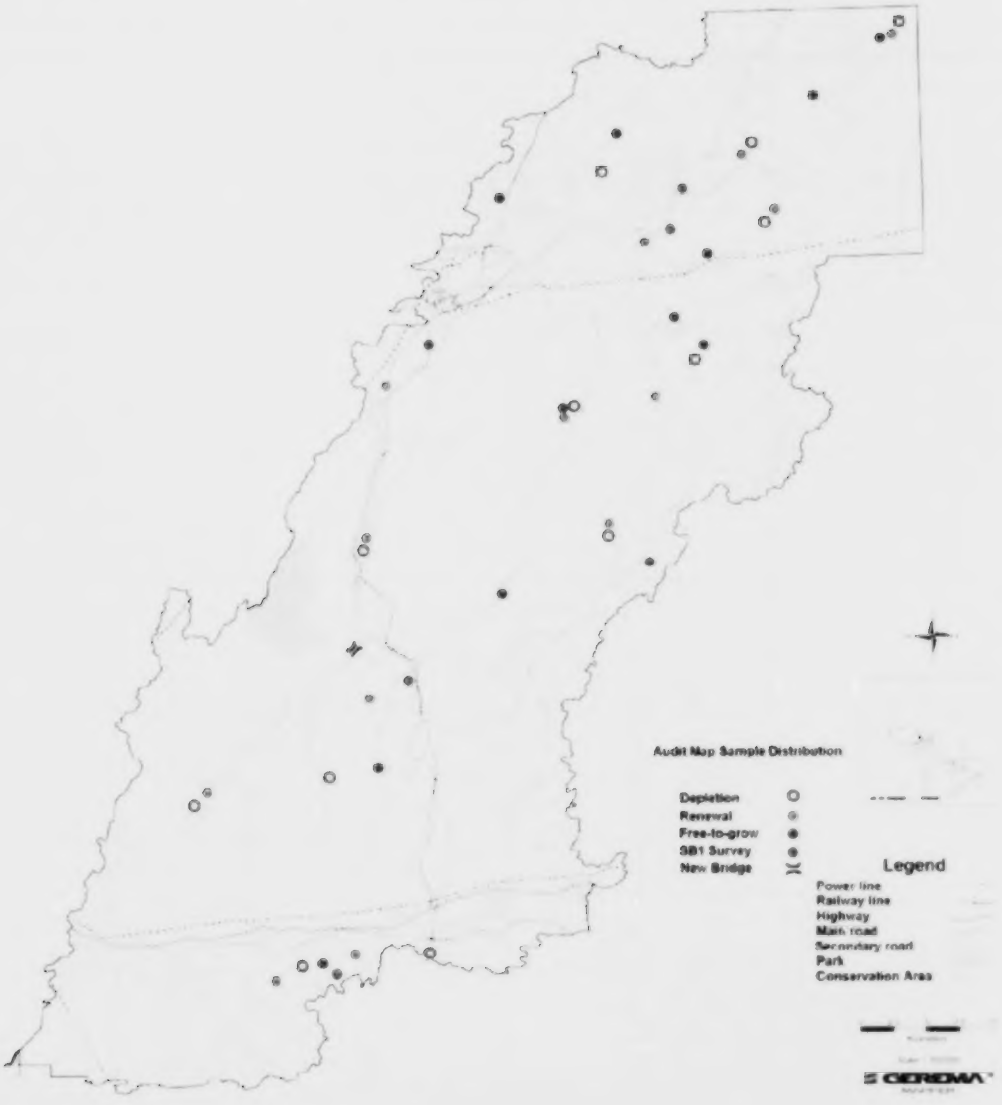

Figure 2: Map of the Black River Forest

2.2.2 Description of the Black River Forest

The Black River Forest is in the boreal forest region, east, north, and south of Manitouwadge. The Black River flows through the Forest from northeast to southwest in the centre of the unit. Among the many lakes in the Forest, Garnham Lake, Cedar Lake and Dotted Lake are three of the largest. The Black River Forest has rolling terrain for most of the area with steep, rocky, and broken ground found in a section in the southwest corner near Lake Superior. The main drainage is to the southwest, although a few streams flow to the north (Arctic drainage).

The Forest is one of the smallest in Ontario with a total area of 257,000 ha. The 2001 FMP reported approximately 215,000 ha of Crown forested land available for management (Table 4). The reported area increased by 11% from the 1996-2001 management plan period. The reason for the variance in area was that the 1996 Forest Management Plan was based on a forest resource inventory (FRI) that was delivered in 1994 and had not been checked. The development of the 2001 planning FRI included quality control on this 1994 FRI and corrections were made in the digital database.

TABLE 4: BLACK RIVER FOREST LANDBASE

Category	Area in ha
Water	15,796
Other land	4,488
Forested non-productive	18,589
Protection forest	2,556
Crown production forested area	215,196
Total Black River forest	**256,625**
Parks and Park reserves (one park: Pan Lake Fen, 625 ha, Isko Dewabe Lake Complex Conservation Reserve, 2,970 ha. Includes both productive and non-productive areas)	3,595

Source: 2001 FMP

Tree species found here included white and black spruce (Sw, Sb), jack pine (Pj), poplar (Po), white birch (Bw) and balsam fir (Bf). Larch (L: also called tamarack), eastern white cedar (Ce) and ash (A) were scattered in low volumes throughout the area. White pine (Pw) was limited to one very small stand, too small to note as a separate polygon in the inventory.

For long-term management planning purposes, Black River Forest stands were grouped into forest units based on both tree species and site types. These forest units were in turn grouped for forest management planning modeling purposes using the Northeast Region standard forest units. Areas by forest unit are shown in Table 5. Previously, forest stand groupings were by working groups whose names focussed on tree species, regardless of site types.

TABLE 5: FOREST UNIT AREAS (HA)

Forest Unit	Unit Name	Protection Forest	Production Forest		Total
			Unavailable	Available	
LC1	Lowland Conifer	33	322	2,839	3,194
SBOG	Spruce Bog	1,360	0	36	1,396
SB1	Black Spruce Pure	0	9,474	51,249	60,723
PJ1	Jack Pine Pure	0	1,021	15,897	16,918
PJ2	Jack Pine Mixed	0	1,219	7,669	8,888
SP1	Spruce Upland	0	976	6,487	7,463
MW1	Pine Mixedwood	0	1,008	6,170	7,178
SF1	Spruce/Fir/Cedar	11	3,745	27,002	30,758
PO1	Poplar	0	1,990	20,784	22,774
BW1	Birch	237	5,149	17,102	22,488
MW2	Spruce Mixedwood	854	4,760	24,720	30,334
Total		**2,495**	**29,664**	**179,955**	**212,114**

Source: 2001 Forest Management Plan

Note: 15,964 ha of the available forest land were classed as inoperable, because of terrain. In addition, buffer area (to remain uncut) was estimated at 9,300 ha during the five-year plan period.

The Black River Forest produced a fibre supply of coniferous and deciduous logs that either was processed directly at or had chips sent to the mills in Table 6. Data for 2005-06 were not available at the time of the 2006 plan preparation.

TABLE 6: MILLS THAT RECEIVED LOGS OR CHIPS FROM THE BLACK RIVER FOREST DURING SELECTED YEARS

Mill	Location	Roundwood or chips delivered 1998-99 (from 2001 FMP)	Roundwood or chips delivered 2004-05 (from 2006 FMP)
Dubreuil Forest Products Limited	Dubreuilville	Roundwood	Roundwood
Great West Timber Limited	Thunder Bay		Roundwood
Neenah Paper Company of Canada	Terrace Bay	Roundwood	Roundwood
Northern Sawmills Limited	Thunder Bay		Roundwood
Weyerhaeuser Company Ltd.	Wawa	Roundwood	Roundwood (minor amounts)
Bowater	Thunder Bay	Chips	Chips
Marathon Pulp Inc.	Marathon	Chips	Chips
Neenah Paper Company of Canada[6]	Terrace Bay	Chips	Chips

Note: Only mills receiving significant volumes are shown here. Significant means greater than 4,000 m^3. Levesque Plywood Limited at Hearst (a Black River Forest commitment holder) received a small volume of logs during 2004-05. Levesque Plywood at Nipigon received 13,000 m^3 of poplar during the period 2005-06. Both are owned by Columbia Forest Products Ltd.

There were more mills (not shown in Table 6) that received small volumes of timber from the Forest during the 2001-06 period. In addition, some wood was used for personal use. More discussion on wood supply commitments to Levesque and others is found in Section 3.8.

[6] Buchanan Group purchased Neenah Paper during fall, 2006.

Harvesting and renewal activities on the forest area provided significant employment in Manitouwadge and surrounding communities. Economic statistics showed that 24% of the local labour force was directly employed in logging, renewal, and manufacturing of forest products[7]. Audit interviews indicated that this level of involvement continued during the audit period.

Records showed that commercial logging began on the Black River Forest during the 1930's, with speculation that railroad ties and building timbers were taken as far back as the 1880's. Earliest timber rights were for pulpwood for export and during 1937 these rights were transferred to the Ontario Paper Company for the mill in Thorold (near Niagara Falls). Logs were transported by water down the Black River to Lake Superior, then by freighter to the Thorold mill. Subsequently in the 1960's, this transport system was changed to rail.

A reduction of pulp mill requirements occurred because of increasing use of recycled paper. Thus, the need to diversify wood products began. Increased shipments of sawlogs were delivered to the Great West Timber mill in Thunder Bay during the 1980's. By the 1990's, local saw mills, pulp mills and a strand board mill were taking a variety of species, but it wasn't until the 2001 FMP period that the full spectrum of main species on the Black River Forest was utilized. The 2006 FMP was the third plan since the area became a sustainable forest licence.

Annual harvest varied over the years, but was increasing during this audit period. Harvest averaged 100,000 m^3 per year (1991-1996 annual reports) and increased to 150,000 m^3 (2001-2005 annual reports). A low period occurred during the 1996-2001 period of 86,000 m^3. The increase in the current period was due to a number of factors:

- Good pulp and paper prices, leading to a high demand for both poplar and birch.
- High points in the lumber market in the US. This led to high demand for spruce and pine sawlogs and a higher usage of minor species, such as cedar and larch.
- Favorable exchange rates between the Canadian and the US dollar.
- There were a number of mills (pulp, oriented strand board and lumber) within reasonably close hauling distances.

These conditions may change drastically during the next period. Local mills were recently struggling because the Canada/US exchange rate is much poorer. In addition, energy costs were rapidly rising during 2005 and 2006 and the resolution of the Canada/US softwood lumber dispute involved a tariff. This tariff would be added based on shipments to the US when that market became depressed and lumber prices passed a threshold level. The US market in mid 2006 crossed that threshold and does not appear to be improving in the short term.

The age class distribution of the forest was relatively even, except for a large area in the 61-80 year class. There was little area in the oldest age classes (more on this in Section 3.7).

Disturbances on the Forest included major fires (the last major fire was in the mid 1990's), logging and periodic minor blowdown. There was a spruce budworm infestation starting during the 1970's that killed much of the balsam fir on the forest.

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[7] Source: Manitouwadge Community Profile, produced by the Manitouwadge Economic Development Corporation using 1991 census data.

The main silvicultural system was clear-cut with residuals. During the current plan, larger clearcuts were proposed and approved to emulate natural disturbance patterns. Snags and live trees were left on blocks to provide some bird and wildlife habitat. No new primary and only 2 km of new secondary roads were constructed over the past five years to provide access to the harvest blocks. Overall, the Black River Forest had an extensive road system due to the long harvest and mining history. The only major area with limited access was the Swede River Valley.

2.2.3 Forest Management Issues

Issues[8] had been addressed in the 2001 and 2006 Forest Management Plans. Nevertheless, during the planning phase of this audit, additional high priority aspects were identified by the audit team for further attention during the audit. The following high priority aspects were deemed more important to consider further during the audit planning and execution phase:

- Silviculture- a concern was raised regarding the success of natural reforestation in some site types of the lowland black spruce Forest Unit both in achieving free-to-grow and in achieving black spruce regeneration.
- Access -Some groups wanted extended access opportunities (for example, recreationists) and others wanted limited access (e.g. remote tourism operator). There were some differences of opinion amongst public groups and stakeholders regarding mitigation of access, such as abandonment of roads and construction of physical barriers to motorized access.
- The 2006 Forest Management Plan had a request for designation of an Individual Environmental Assessment[9]. The request was made after this plan had been approved by the Northeast Regional Director. After this request, the plan received concurrence for operations from the Ministry of the Environment (MOE).
- Previous audit action plan item: identification of bypass areas was half completed.
- There was significant turnover of MNR local staff, especially biologists, during the last five years.

This audit focussed on the normal forest management planning and operations processes, with additional emphasis on the above noted aspects.

[8] Issues raised by the local community, MNR, the Company and stakeholders, and described in the 2001 and 2006 FMPs had been dealt with in these FMPs and during annual work schedule preparation (review of LCC minutes).
[9] This Request is colloquially termed a "bump up". A decision by the MOE is expected during 2007.

3 AUDIT FINDINGS

3.1 COMMITMENT

Audit Principle

Commitment is reflected in the vision, mission and policy statements of the Company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.

There were MNR and Company policies and strategic direction during the audit period. The Company had forest management, business and environmental policies in documents such as the 1999 Company business plan, previous Black River FMPs and compliance plans. Strategic direction was shown in the Company's 2005 Forest Management Policy statement.

The environmental policies were available to employees, the overlapping licensee and contractors. Audit checks showed employees and contractors understood Company policies. The Company had been developing an environmental management system (EMS) on other operations and the Black River Forest will be included in this system during 2006 or 2007. The Company developed a well-written EMS field procedures manual[10] that guided staff activities.

The Company was committed to maintaining good operations and improving compliance. This was apparent in the reduction of minor non-compliant items over the five-year term of the audit. There were no major instances of non-compliance.

MNR's commitment was shown in numerous policy and procedures documents. Three such documents are the 1994 Policy Framework for Sustainable Forests[11], Beyond 2000[12] and Our Sustainable Future[13]. Staff was aware of these and used them during the preparation of the two forest management plans and in reports and monitoring requirements.

Company and MNR staff received periodic performance reviews. Annual staff reviews helped maintain environmental performance and compliance of the field operations. These also assisted staff to demonstrate commitment to meeting forest laws and policy statements.

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[10] Buchanan Forest Products Ltd. 2005. Environmental Management of Woodlands-Operations Manual, Version 2.0. 34 pp.
[11] MNR. 1994. Policy Framework for Sustainable Forests. 5 pp.
[12] MNR. 2000. Beyond 2000. 19 pp.
[13] MNR. 2005. Our Sustainable Future. 29 pp.

3.2 PUBLIC PARTICIPATION AND CONSULTATION

Audit Principle

The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, LCC, native groups, and other parties with an interest in the operations of the forest unit

The audit team found that the MNR and the Company complied with the requirements for consultative involvement among the public, native groups, the Manitouwadge Public Consultation Committee (hereinafter called the LCC), stakeholders and planning team members during the 2001-06 period. Issues identified during the past five years and within the 2001 and 2006 FMPs and concerns expressed from stakeholders were materially addressed during forest management planning and operations. For example, concerns of stakeholders such as a remote tourism operator and hunters regarding access were dealt with during planning and operations. The audit team requested information from public and stakeholders via mail and in person. This was done to solicit evidence as to how well issues were being addressed (details in Appendix E).

3.2.1 Local Citizens Committee

The LCC was in place since the 1980's. This committee was involved with the Big Pic Forest in addition to the Black River Forest. There had been some recent losses to Committee membership (e.g. because of a mine closure). The LCC actively searched for new members to replace these. The audit team noted that the makeup of the LCC complied overall with the Terms and Conditions of the Class EA[14], although there could be improvements in attracting representatives of commercial tourism. This concern did not lead to a suggestion, since the team was satisfied that reasonable attempts were made to solicit wider participation.

The audit team noted that a core group had been on the committee for a long period of time, providing continuity. The LCC was very active (meetings monthly), had continuous leadership, had a reasonably wide variety of members and was working well, with the exception noted below. The committee was interactive and provided input to the 2001 and 2006 Forest Management Plans. The LCC met the purposes as required by the FMPM. The committee substantially succeeded in their role of ensuring public interests are understood and considered by the Company and MNR for both operational and management planning. Other responsibilities were carried out including improving the public consultation process, reviewing management alternatives, assisting in values identification, promoting conflict resolution, and assisting in monitoring plan outcomes.

The LCC Terms of Reference (TOR) were renewed during 2003 and 2004, and met the majority of the requirements of the 2004 FMPM. The TOR had little direction to clarify the roles of the LCC regarding membership, either for new members or for removing members who were not contributing. The Ojibways of Pic River First Nation (Pic River) has a First Nations

[14] Ontario Environmental Assessment Board. 1994. Schedule "A" - the terms and conditions and appendices of the Class Environmental Assessment by the Ministry of Natural Resources for timber management on Crown lands in Ontario. Mimeo. pp. 425-531. Also see the Ontario Environmental Assessment Board. 2003. Conditions and appendices of the Class EA Approval for Forest Management on Crown Lands in Ontario

representative on the LCC but he was ineffective. He attended very few meetings over the last five years. There was no representative of the Pic Mobert First Nation (Pic Mobert) on the LCC, although the MNR tried many times to involve them on the committee. It was noted that representatives from the two local native communities were represented on the 2006 FMP planning team (See Section 3.2.3).

The LCC attended information centres, was involved at the AWS stage and gave input into issues such as access. Articles on LCC work had appeared in the local paper. It was reported that this was one of the few committees in the Province that have liability insurance, giving some financial protection to members.

The description of the roles of the LCC could be improved regarding:

- Attendance at public information sessions.
- Their responsibilities/roles regarding choosing new members.
- Better communication between the MNR/Company regarding the management planning process and the community/stakeholders. For example, there was some confusion regarding roles with respect to "approval" of a plan versus "review and comment".

The LCC provided input during the preparation of the 2006 FMP. However, one interviewee on the LCC stated the group did not have an opportunity to comment on the Action Plan for the 1996-2001 audit report. The audit team did not find evidence to either substantiate or refute this claim, although another member indicated that the LCC had "some involvement" with the Action Plan.

Suggestion 1. The MNR should clarify the roles and responsibilities of the LCC in the next terms of reference.

MNR funding to the LCC dropped substantially over the five-year period. During 2005, funding levels were about one quarter of what they were historically, while responsibilities and work complexity expanded[15]. As well, the way in which funding was allocated changed. Previously, the LCC had a defined budget for specified work. During 2005, there was no defined budget and individual members submitted expenses directly to the MNR. Thus, the LCC lost the ability to manage their budget, which created difficulties. One example of this was that there appeared to be a misunderstanding by the committee about what the actual level of available MNR funding was for 2005-06. Money that was expected to be available from an under-utilization of 2005 funds was not rolled over to 2006. In another example, a member of the committee reportedly quit a nearby Forest's planning team during 2006 because he had not been reimbursed for per-diem expenses related to planning team attendance on behalf of the LCC. This was subsequently corrected and he is back on the nearby Forest's planning team. The reduction of funding and the lack of clarity around funding were issues that started to affect the workings of the committee.

[15] Examples of additional complexity were in the implementation of the 2004 Forest Management Planning Manual: ten-year plans were to be created, there were more annual reporting responsibilities, and there were additional requirements around metrics of sustainability criteria, which were not easy concepts to deal with.

Recommendation 1

The MNR should determine what the realistic financial requirements are for the effective working of the LCC and endeavor to provide the funding on a timely basis.

The audit team found that the committee was reasonably broad-based and effective in its work advising the MNR and Company. The LCC provided input to the 2001 and 2006 FMPs, the current and last independent forest audit, and reviewed the annual work schedules (AWS). The committee was diligent in its role of providing a forum for discussion of local issues brought forward by concerned citizens.

3.2.2 Public Participation in FMP Process

The MNR and Company met all requirements for public participation during the preparation of the 2006 FMP. (Input to the 2001 plan was audited during the 2001 IFA). The auditors interviewed a number of stakeholders, members of the public and reviewed forest management planning public participation records.

The audit team confirmed that opportunities for input were provided at all stages of the planning process, both from the general public and from affected stakeholders. Letters were sent to the public during the initial planning process for the FMPs. Advertisements were placed in local papers. In addition, open houses at the correct stages of plan preparation were held to permit public input. Information session meetings were lightly attended in Manitouwadge and other nearby centres, despite the MNR extensive advertising and promotional efforts.

There had been on-going communication between stakeholders (e.g. snowmobilers and trappers), the MNR and the Company regarding access development and harvesting. There was reasonable opportunity for public input to the planning process both through the LCC and directly to both the MNR and the Company. There was an issue resolution process in place, and the MNR adhered to the procedures. During 2001, a person requested that an Individual Environmental Assessment (commonly called a "bump-up) be made. This request was dealt with during the audit period. During spring, 2006 (within the audit period) another request was made for an Individual Environmental Assessment. The request alleged that the planning process was non-compliance with the Forest Management Planning Manual for the preparation of the 2006 plan. This allegation has still to be dealt with by the MOE. In both cases, the existing forest management plan remained in effect.

3.2.3 Aboriginal Peoples Consultation

There were no aboriginal reserves within the Black River Forest, although Pic River and Pic Mobert have communities and reserves near the Forest to the southwest and southeast respectively. Constance Lake Band to the northwest had an aboriginal land claim (continuing on beyond the audit period) that covered a small part of the northeast corner. This Band did not respond to MNR's requests to participate in forest management during the planning for the 2001 FMP and did not participate in planning for the 2006 plan.

The MNR contacted Pic River and Pic Mobert regarding forest management planning and activities for the 2001 and 2006 FMPs. Native values reports were prepared and were comprehensive. Over the five-year audit period, audit team review of the records and interviews that were conducted showed continual and repeated communication by the MNR with the two Bands. Both Bands participated in the Aboriginal Consultation Process. Pic River Development Corporation harvested a commitment on the Black River Forest, and the representative of the Corporation provided input for management planning on behalf of Pic River. Both communities had a representative on the planning team for the 2006 FMP.

The audit team reviewed the MNR aboriginal liaison officer's and the MNR Manitouwadge office files and telephone logs to verify the ongoing communication and the participation of the two groups in information sessions. MNR promoted economic opportunity with local aboriginal individuals, in conjunction with the Company. For example, there were aboriginal participation opportunities in employment in forest management such as silviculture and logging. The MNR conformed to FMPM consultation requirements, including the preparation of the Native Background Information Report and a Native Values Report for the 2006 FMP.

The audit team interviewed a representative of Pic River and Pic Mobert. Results of the interviews showed both were involved in planning and had forest-based economic opportunity. Pic Mobert was disappointed that a higher level of opportunity for logging and receiving an overlapping licence was not made available to them. The audit team was satisfied with MNR's and the Company's efforts in this regard with Pic Mobert, since they had only recently began active participation on their end. Pic Mobert is closer to another Forest and was negotiating with the nearby licensee for forest-based opportunities. Pic River had active participation in forest-based economic opportunities with an overlapping licence and the audit team was satisfied that reasonable efforts had been made by MNR and the Company with respect to both native groups. For more information see APPENDIX E, SUMMARY OF INPUT TO AUDIT PROCESS.

Reporting on First Nation participation had occurred, however there was a lack of analysis on this regarding indicators of sustainability when the 1996-2001 RPFO was created. See Section 3.7.3 for more discussion on this.

3.2.4 Annual Work Schedule Public Inspection

Public notices of approved annual work schedules (AWS) were posted and mailed out (MNR lists) and met requirements. The MNR and Company provided opportunity for public input and LCC review during AWS preparation. LCC meetings to explain the AWS were held, as per requirements in the FMPM.

The public was advised of aerial spray projects through public and on-site notices. These were in English, French, and Ojicree.

3.3 FOREST MANAGEMENT PLANNING

Audit Principle

The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.

This section has information regarding both the 2001 and the 2006 FMPs. In general, the two FMPs have similar structure and content. Some points of similarity were the sections on forest description, assumptions used in modeling, use of new forest units and yield tables, to name but a few. Differences were in the updating of the forest inventory, more discussion around other resource values and the transformation of the existing forest units for modeling using the North East Region Standard Forest Units for use by the Sustainable Forest Management Model (SFMM). The audit team found conformance/compliance of the two plans with legal, MNR policy, and FMPM requirements, with minor exceptions noted below.

3.3.1 Planning Team Activities

Planning teams for both plans were created two years before they were due, as required by the FMPM. Planning team Terms of Reference were established and guidance given to the FMP authors. The plans' Terms of Reference were approved by the MNR. Both planning teams had membership from the MNR, the Company, the LCC and Pic River Development Corporation. Both the MNR and the Company cooperated with the both planning teams to meet the schedule for plan completion. The planning team members participated according to the FMPM and completed the plan in a timely manner. The audit team reviewed the 2006 FMP planning team minutes, interviewed some members of the planning team, and found that the planning team membership and activities were effective and complied with both the 1996 and 2004 FMPM.

3.3.2 Sources of Direction

Preparation of each forest management plan began by using provincial legislation/ policies to guide the planning process and define content. The two FMPs clearly showed these policies, legislation, legal commitments, local land use priorities and regional requirements. MNR provided these at the beginning of each planning period. It is notable that there are over 50 policies/administrative procedures and 44 manuals or guides listed in the 2001 FMP and significantly more in the 2006 FMP.

The operations that were shown in the annual work schedules for the five-year period of the 2001 FMP were planned in conformance with the plan (e.g. AOC buffers) and with the various guidelines, such as road location, road use, and monitoring. The audit team found that comprehensive references to appropriate sources of direction were shown in both plans.

3.3.3 Introduction

As noted above, the two plans were similar in structure and content. Although the details here refer to the 2006 FMP, the 2001 plan also had a similar process. The 2006 FMP plan started during 2004. It was submitted by the Company plan author[16] during early 2006 and approved by MNR during March, 2006. The 2006 FMP was reviewed at both the District and Regional levels before final approval by the Regional Director. The audit team found that forest management planning requirements in effect at the time of preparation were met for this plan.

The Index to Environmental Assessment Components was shown at the beginning of both plans. This index is a summary table showing where in the FMP the eight categories of environmental components were addressed. The two indices met the structure and content requirements of the 1996 FMPM. The audit team found that the references shown in the indices were correct.

There were MNR Statements of Environmental Values Briefing Notes (SEV) included as Appendix Y of the 2001 FMP and at the beginning of the 2006 FMP as required by the FMPM and the Ontario Environmental Bill of Rights[17]. Appendix Y of the 2001 FMP also contained a Resource-Based Policy Tourism Report. The briefing notes discussed the following:

- Furthering MNR's goals and objectives.
- Stewardship principles in MNR policy documents that were served by the proposed FMP.
- How social, economic, environmental, and scientific considerations were integrated with environmental goals.
- The desired outcomes that were anticipated to be achieved.
- Conflicts between FMP and commitments in the Statements of Environmental Values, Beyond 2000, and Our Sustainable Future (in the case of the 2006 FMP). There were no conflicts.
- How the specific purposes of the Environmental Bill of Rights were served by the two FMPs and their compliance with the Statements of Environmental Values, Beyond 2000, and Our Sustainable Future.
- Measures to monitor the success of the FMP to MNR policy documents.

The MNR District Manager signed the two SEVs. The audit team found that the contents of the two SEVs met the Environmental Bill of Rights and the 1996 FMPM requirements.

3.3.4 Resource Stewardship Agreements

The 1999 Ontario's Living Legacy Land Use Strategy fostered resource-based tourism and forest industries to work together to plan forestry operations to minimize impact on tourist operations. Sustainable Forest License (SFL) holders and resource-based tourism operators were encouraged to negotiate Resource Stewardship Agreements (RSA). In an RSA, the license holder and the tourism operator would discuss their respective values/concerns and agree on such

[16] A Registered Professional Forester (R.P.F) under the Ontario Professional Foresters Association (OPFA).
[17] Ontario Environmental Bill of Rights. 1993. 124 Sections.

factors as forest management prescriptions, tourism values, silviculture activities, and road use strategies. These agreements then contributed to new forest management plans.

The development of RSAs came into effect during 2003, after the 2001 FMP had been written. During the preparation of the 2006 FMP, the MNR District supported the Company in working towards an RSA with affected parties on or near the Black River Forest. Discussion began during 2004 on potential agreements for the 2006 plan. The Company sent letters to two remote tourism outfitters and two road-based outfitters inviting participation in a RSA and the Company and MNR continued dialogue with them. By mid-2005, no interest had been shown by three of the four. Discussions continued with the fourth tourism outfitter and the next stage was begun. During 2005, however, the fourth opted out of the process and did not indicate their areas of concern on the maps sent to them. No agreements were entered into, in spite of the efforts to do so. The audit team found that all reasonable efforts to enter into an RSA had been made.

3.3.5 Management Unit Description

The description of the Black River Forest in the 2001 and 2006 FMPs met the requirements of the 1996 FMPM. Appropriate background information and analyses were provided in order to develop the management objectives described in the plan. Exceptions and comments to this general concurrence are discussed below.

For both plans, the start of the management unit description gave a detailed historical account of forest-based activities from earliest commercial logging during the 1930's to the present. The description showed the setting of the Black River Forest in the regional context and described the community and parks. The land features were appropriately described, such as soils, geology, the Forest's location in the boreal region, topography, macroclimate, and glaciation features.

A new forest resources inventory (FRI) was prepared during 1992 from 1990 aerial photography that had forest stands delineated by the Company and digitally inputted by MNR staff. This inventory was corrected after delivery to the Company during 1994 and a planning inventory was prepared by updating the FRI data set for natural and harvest depletions, renewal (e.g. free-to-grow information), new roads, and stand ages. This planning inventory was used in the preparation of both the 2001 and 2006 FMPs. For the five-year period of the 2001 FMP, aerial photographs taken of the cut blocks were used to determine depletion. The imagery was digitized and/or geographically rectified to fit the FRI database. The audit team found the images provided were accurate at showing depletion, mechanical site preparation and the position of the buffers around Areas of Concern (AOCs). Depletion and silviculture records were appropriately prepared and stored. The use of the Company and MNR GIS assisted in record keeping for both plans.

For the 2001 FMP, there were 15,964 ha described as inoperable area, based on topographic limitations. The strategy for handling inoperable changed for the 2006 plan: areas were classified as available, inoperable or hard-to-operate. All inoperable areas and 30% of the hard-to operate were removed from the planning inventory during the SFMM analysis. The

actual hectares that were removed were not reported in the 2006 FMP. Our review of the planning data indicated that this approach was appropriate in the opinion of the audit team

Other data that contributed to the 2006 FMP were the 1996 – 2001 RPFO, the summary of the implementation of the 2001 Independent Forest Audit recommendations and the small amount of secondary/primary road construction.

For both plans, the description of the historic and current forest condition corresponded with the evidence reviewed by the audit team during the audit. This description adequately explains changes in the Forest over time. These changes include the reduction in the balsam fir unit, increases in hardwood/mixed wood percentages and reduction in jack pine stands. However, the changes in definition of working groups used in the 1990's to forest units during the 2001 and 2006 plans made analyses difficult. These FU changes were especially challenging for the analyses performed during the preparation of the 2006 FMP, as required using the Northeast Region Standard Forest Units. See Figure 11 and the discussion on this in Section 3.7.3.1

Forest Diversity Indices were created for both plans and met the requirements. The indices in the 2001 Plan were shown in FMP 4 table, corresponding to the phase-in requirements of the 1996 FMPM. The 2006 plan had both FMP 4 and FMP 9 tables (data by forest unit) as required.

The 2006 FMP described the significant wildlife and fish species, including endangered, at-risk, and the 20[18] Provincially or regionally selected species. These descriptions and values were described in the *Natural Resources Values Information System*. Outside of this system, locations of native cultural heritage were solicited and taken into consideration during planning. Because of its small size, the Black River Forest only represented 3.1% of the regional habitat for noted wildlife species. The MNR's Natural Resources Values Information System (NRVIS) showed four eagle nests, three osprey nests, five heron rookeries, one warm water spawning area, and nine cold water spawning areas (2006 FMP). Other known values included 104 high or very high ranking moose aquatic feeding areas, 21 trappers' cabins, and 14 stocked cold water lakes. Protection of wildlife habitat was recognized as important in the Forest. It was noted during the audit field review that as values were discovered during operations, they were protected. For example, an eagle's nest was discovered during harvest operations in the southwestern part and this was protected with a new AOC buffer.

Landscape processes for water runoff and net carbon assimilation were shown in both plans. The data for these were adequately described and met planning requirements.

There were descriptions of other resource values in the 2001 and 2006 FMPs. These included cultural, critical wildlife, and fisheries values. Native values were identified during the native consultation process for both plans. Other resource values were more completely described in the 2006 plan, which included tourism and local forest uses. These local and non-resident uses included snowmobiling, hunting and fishing camps, canoeing, local and non-resident hunting, and trapping.

[18] There were 18 in the 2001 FMP, corresponding to the requirements at the time.

Both plans showed featured species, (e.g. provincially featured such as moose and marten). Both the 2001 and the 2006 FMP described endangered/threatened and species of special concern correctly (species at risk, SAR). Endangered or threatened species included the bald eagle, peregrine falcon, eastern cougar and the woodland caribou. Bald eagles were seen regularly and woodland caribou, infrequently. There were no reported sightings of cougar and peregrine falcon.

Species of special concern included the black tern, great gray owl, short-eared owl and wolverine. There had not been any confirmed sightings of these species. The known species were recognized and planned for during forest management planning and operations. The Company promoted worker awareness regarding the above listed species. Both FMPs described a number of protection strategies, one of which was to reduce fragmentation of the forest by emulating natural disturbance patterns. There were no reported threatened or endangered fish species or plant communities on the Forest.

The description of critical fisheries habitat in both plans focused mainly on habitat for brook trout, the major fish species in the Northeast Region. The land base drainage is mostly to Lake Superior through the Black River system; however, the northeast corner drains to the Arctic. The Black River system is categorized as coldwater because of the potential for brook trout. The audit team found that planning for cold water species was mainly by default (i.e. most waterbodies were classed as cold water in the absence of fisheries data (see below)). Protection of brook trout required stringent timing restrictions when constructing water crossings and the team found that these restrictions were adhered to.

Aerial surveys were conducted for moose aquatic feeding areas (Figure 3) and for stick nests (raptors, herons) during the 2001-06 period. Where new values were discovered during operations, they were protected.

FIGURE 3: MOOSE SWIMMING IN ONE OF THE MANY SMALL LAKES ON THE BLACK RIVER FOREST.

In the opinion of the audit team, although useful work was conducted to date on values collection and these efforts had increased from the 1996-2001 plan period, the level of work was still insufficient in the 2006 FMP to meet forest management planning needs. For example, collection of fisheries values was limited during the audit period. Some examples of incomplete values information included:

1. Warm/Cool/Cold Water bodies: There was minimal information on fisheries values in the Forest. During the last two years there was some work on determining warm/cool/cold water lakes and streams and identifying critical fish habitat. MNR collected data on only nine streams during 2004 and 2005[19]. Of the over 2000 km of permanent streams on the Forest, only 86 km had a verified thermal regime. As well, within the 86 km, the data source for the water body classification was unknown. MNR did little work in stream classification over the last five years and what was carried out was not verifiable. Lack of fisheries data led to streams with unknown fisheries values being classified as cold water streams. This classification affected the timing of water crossing installations, aerial spray buffer widths and road construction.
2. There were examples where the application of aerial herbicide had been permitted within 120 m of water bodies/courses, despite the absence of critical fish habitat data. There was limited MNR biologist review of the AOC prescription to support this practice[20]. On all blocks checked, the aerial spray stayed 60 m or more away from the stream. The MNR has agreed with the Company to alter the requirements, to allow for minimal spray buffers. However, this approach was ad hoc and more formal definition of each stream regarding the actual fisheries value is an improved practice.
3. Modified harvest in streamside buffers was not occurring. This was because the water body was defaulted to cold water in most cases, which did not allow modified buffer harvest. Modified harvest will allow more coniferous timber production and facilitate renewal of hardwoods for beavers and other animals, without compromising fish habitat.
4. White pine and Canada yew are rare on the Black River Forest and white pine is near the edge of its range. These were not noted as values in the 2006 FMP. The white pine were left as seed trees and natural regeneration was occurring. The known sites should be noted similar to the manner in which confidential native values are handled to ensure their future protection as gene pool areas.

Recommendation 2

The MNR should allocate sufficient resources for the timely collection and delivery of values information.

Recommendation 3

The MNR should develop a cost-effective rapid assessment technique for determining thermal regime of waterbodies and watercourses and identifying critical fish habitat.

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[19] MNR entered into an agreement for joint collection of stream data during 2004 with the Company. It appeared that the Company did not assist the MNR in these surveys to the extent the MNR thought they should. Nevertheless, this alleged lack of Company assistance does not diminish the responsibility of the MNR to collect adequate values.

[20] The MOE letter to MNR, February 18, 1992 stated: "In locations where critical fish habitat is likely to occur, and where survey data have not yet been collected, those areas should be treated as sensitive i.e. buffer increased to 120 m." MNR practice is to allow a risk-based decision by the local biologist to reduce the width, but this was not done.

Streams shown on the forest inventory map near operations were routinely planned to be protected using a slope-dependent AOC reserve. However, at times the stream on the map did not exist in the field. Tiny ephemeral streams or mapped streams that did not exist typically occurred within lowland black spruce Forest Units. There were five noted instances where a water quality value did not exist or was minor and the lack of information affected operations. Two examples included:

Case 1: An AOC buffer as shown on the map was laid out in the summer in the location the map indicated it should be. The small stream was not found at that time. The block was then harvested to the marked boundary, too close to the previously undiscovered small stream in the field, creating a trespass. The Company discovered this and sent the information to the MNR. The occurrence was dealt with as a trespass, although the situation was very minor. The required remediation was to renew the trespass area and this area was planted during 2004.

Case 2: A spruce swamp, about 50 to 70 m wide had a mapped stream in the centre. As in case one, the only physical indication of a stream was a slightly heavier concentration of alder and some small potholes. No distinct stream channel was noted. The 30 m AOC boundary was marked on one side of the swamp, because that was the only side that appeared to require it according to the map. In reality, no stream was there. Where the road crossed the swamp, a planned 1000 mm metal culvert was installed, far larger than needed in the audit team's opinion.

For ephemeral or intermittent streams, the Company was only required to follow the 3 m Riparian Code of Practice[21]. The problem lies in the mapping and identification of the streams. Intermittent streams with fish values were accorded AOC slope-dependent reserves; however there were no fish value data, so all stream are treated as permanent. The audit team notes that there is *The Stream Permanency Handbook for South-Central Ontario* (produced by MNR in 2005) for training that may be useful here.

Recommendation 4

The Company and MNR should hold joint training with planners, compliance and operations staff regarding the identification and management of ephemeral, intermittent, and permanent streams.

The 2001 and 2006 FMPs described the baseline socioeconomic profile that was developed for planning purposes. This profile was prepared using the Socio Economic Impact Model (SEIM). SEIM used population and other data to describe the communities and forest industry in four MNR districts affected by forest management on the Black River Forest. An interesting statistic in the 2006 plan from this model showed that the Wawa District was 52 times more dependent on logging and 80 times more dependent on sawmilling than the Province as a whole. Dependency proportion has been rising since the preparation of the 2001 FMP.

The audit team received a comment from a member of the planning team stating that this model focused almost entirely on the wood extraction and processing industry and did not

[21] MNR. 1991. Code of Practice for Timber Management in Riparian Areas. 9 pp.

adequately address the economic effects of tourism. After a thorough discussion among the audit team and a review of the content of the 2006 FMP, we found that there was a reasonable discussion of tourism in addition to the SEIM outputs.

During the late 1990's, the total estimated annual roundwood volume was about 90,000 m^3 annually and has been increasing over the period of the 2001 FMP (Table 7). Historically, at least 16 mills from four MNR districts received timber from the Black River Forest. During the 2004-05 year, the following had roundwood deliveries of more than 5,000 m^3: Neenah Paper Company of Canada's pulp mill at Terrace Bay (formerly Kimberly-Clark of Canada Ltd., shut down in 2006, and now a Buchanan mill), Dubreuil Forest Products Limited's sawmill at Dubreuilville, Great West Timber Ltd.'s sawmill at Thunder Bay and Northern Sawmills Inc.'s mill at Thunder Bay. Chips were sent to Marathon Pulp Inc. at Marathon, Bowater at Thunder Bay and Neenah Paper. Since 2001, more birch and aspen were being sent to local mills (14,000 m^3 annually for the 1996-2001 period and 33,000 m^3 annually for the 2001-2005 period.

TABLE 7: AVERAGE ANNUAL VOLUME HARVESTED OVER THE THREE PLAN PERIODS

Category	1991-96	1996-2001	2001-06
Total planned	284	153	181
Total actual	103	87	150.2
Variance %	64%	43%	17%
Poplar and birch planned	99	42	54
Poplar and birch actual	11	14	33
Variance %	89%	67%	39%

Volumes in thousands of cubic meters

The Ojibways of Pic River First Nation had a harvest commitment of 16,800 m^3 of roundwood annually. The Pic River Development Corporation was the Band's vehicle for managing this allocation. Little harvest on this allocation occurred during 1996-2001, but all the allocation was logged during the 2001-06 period.

Non-industrial uses of the Forest included many forms of outdoor recreation, some of which created an economic spin-off effect. The audit team noted that one Manitouwadge bed and breakfast business depended largely on non-resident outdoor recreation-based tourism. Snowmobile clubs in Manitouwadge and surrounding communities created and maintained an extensive trail system, which attracted snowmobilers from many parts of Ontario. Two remote tourism outfitter businesses had operations on lakes either on or next to the Black River Forest. There were seven bear management area operators and 29 trappers. Three baitfish harvesters ran commercial operations on the area. All of these businesses and recreational uses were taken into consideration during planning and operations.

In addition to commercial non-industrial uses, other uses included hunting, fishing, camping, recreational camps, boating, berry picking and snowmobiling. There were two new Ontario's Living Legacy areas within the Forest: Pan Lake Fen Provincial Park and the Isko Dewabo Lake Complex (Conservation Reserve). Forest management planning took these two parks into consideration, by removing the park area from the landbase. Their small size had minimal impact on forest management planning and operations on the remaining land base.

3.3.6 Objectives, Strategies and Management Alternatives

Management objectives and strategies were appropriately defined for the two FMPs. For the two plans, the four objectives required by the FMPM were used and appropriate targets and strategies were developed. Targets included maintenance of wood supply, area by forest unit, available and unavailable FUs, forest cover areas for featured species (moose and marten), forest cover areas for selected species (18 in the 2001 plan and 20 in the 2006 plan), and a new target was used for the 2006 FMP: % of area by disturbance size. This is not an exhaustive list of targets.

Criteria for sustainability were discussed and indicators were modelled in the 2006 FMP. Six criteria were used in the plan: three for biodiversity and three for multiple benefits to society. These indicators corresponded to those required by the 1996 FMPM and were modelled according to the manual requirements.

The audit team reviewed the assumptions used in SFMM modeling of management alternatives for the 2001 and 2006 plans. These assumptions related, for example, to forest growth rate models, access, potential timber losses, operability and potential changes to the forest over time. The assumptions were appropriate and were based on currently available information, such as annual reports (AR) and the 1994 forest inventory prepared for the 2001 plan and revised for the 2006 FMP.

There were six management alternatives used (three required by the FMPM) for the 2001 plan and four were used for the 2006 plan. Only four were used for the 2006 plan because the planning team and the LCC felt that two of the 2001 alternatives used were not practical and that four would be sufficient. The audit team concurred with this decision.

For both plans, the Company used the SFMM, an accepted harvest-planning model. Alternatives that were modeled by SFMM were reviewed by the MNR and the LCC to develop the selected alternative. The final selected alternative was modeled appropriately and a variety of outputs, including a list of areas by forest unit for the future forest condition, with changes over time were presented for discussion by the planning team and the LCC.

The analyses of indicators of sustainability matched transition requirements in the FMPM for the 2001 plan. For this plan, some indicators had no metrics or measurement elements associated with them. As these became available, they were incorporated into the 2006 plan, so that future analyses could be undertaken. A good example of this is *% of area by disturbance size*, which was modeled during the preparation of the 2006 FMP.

Where analyses of trends could not be conducted, modeling was used with the best data available. The Company could not analyse the rest of the required indicators due to a lack of long-term data and studies. As this data becomes available, subsequent analysis of these indicators would provide a solid basis for periodic assessment of sustainable forest management. The status and development of measurement techniques for these indicators is still evolving. From a thorough review of the 2006 FMP, appropriate analyses were utilized during its preparation. See Section 3.7.2.

The audit team found that the socioeconomic analysis used appropriate data in the SEIM model for both plans. The analysis gave insight into economic impacts of alternative timber harvesting strategies. For the 2006 plan, the selected management alternative ranked fourth regarding the "best" alternative with respect to socio-economics. This is because the other three alternatives had very high timber harvest levels for the first term, leading to a high score on the socio-economic model. The even-flow selected alternative had lower first term harvest levels, thus scored lower.

In both plans, the planning teams worked with the *Ontario Wildlife Habitat Analysis Model* (OWHAM) modeling tool to follow the requirements of the *Forest Management Guidelines for the Provision of Marten Habitat*. The model's requirements for marten habitat were adapted to suit local conditions and constraints. Although not all of the ideal targets were met in the guidelines, core areas were developed and were reasonable under the circumstances.

As required by the 1996 FMPM, the habitat requirements for selected fish and wildlife species were integrated correctly into the two FMPs. It was noted that in Table FMP 5 for each plan that there were significant changes between the plans both in the regional numbers of hectares available for potential preferred habitat and in the selected management alternative for the Forest. Over half of the species had significantly different allocated areas both regionally and locally, when compared between the two plans. The regional variation can be explained through lack of baseline data and data sets changed between plans for some parameters. The 2006 plan used a 2001 wildlife data set that could not be confirmed, but was the best the planning team had under the circumstances. The variance for the local predictions of available area cannot easily be explained. Since this aspect of modeling wildlife species habitat for a large number of birds and wildlife is new, it is expected that it will take one or two more plans to get more accuracy into the metrics regarding habitat.

Habitat availability for 20 selected species (18 in the 2001 plan) and additional priority species were aspatially modelled in SFMM and a subset was modeled spatially in OWHAM. SFMM model predictions were incorporated into the ranking of management alternatives. The analysed habitat for selected species largely showed adequate area in the selected harvest scenario in comparison to the no harvest scenario in both FMPs. There was some difficulty in developing scenarios where the planned wildlife habitat was suitable, as well as capable, because of the relatively young age of the Forest.

For example, availability of habitat for black-backed woodpecker was limited in the 2006 FMP due to the historic low levels of older and over-mature forest and the absence of wild fires on the Forest. Bird habitat protection is of increasing concern in the boreal forest, particularly for those species dependent on late successional conifer forests. Priority species for conservation in the boreal forest have recently been identified by the Ontario Landbird Conservation Plan, part of the Ontario Partners in Flight (PIF) program of which MNR is a partner. Although some of these priority species (e.g., black-backed woodpecker and bay-breasted warbler) were modelled in SFMM, there are many forest-dependent priority species whose spatial habitat requirements were not addressed in the 2006 FMP (the Conservation draft plan did not come out until 2006). It was recognized that the current FMP approach to habitat protection and modeling may change

in the future release of a new *Stand and Site Guide* for forest management planning. How bird habitat will be addressed in these guides is currently unknown; however, future FMPs should consider the habitat requirements for all forest-dependent PIF priority species whose ranges significantly overlap with the Black River Forest.

Suggestion 2. The MNR should address habitat modeling requirements of forest-dependent Partners in Flight priority bird species in future planning policy documents.

The audit team's review of the SFMM and other model outputs and results of the analysis of alternatives indicated that the selected harvesting strategy would contribute to long-range sustainable forest management. Planning team and LCC meeting notes indicated that a review of the forest management modeling outputs was made for each of the alternatives in the two plans. There was support and discussion in both plans for the preferred management alternative selected by the planning team. The audit team noted that the discussion of the analyses was thorough for both plans. The selected alternative was scored in first place for all factors (except the socioeconomic factor) against which this alternative was judged.

The available harvest areas (AHA) were consistent with modeling results for each FMP regarding the selected alternative. Available harvest areas increased slightly for the 2006 plan, likely because of better forest inventory information used as input for the 2006 plan. Eligibility criteria for forest stands were developed and appeared reasonable for both plans.

Road planning was addressed in both plans. The only new primary road was the Ice Creek Road in the 2006 FMP, which was not needed in its entirety until after the end of the 2006 FMP. The preferred route for this primary road planned in each FMP was selected from a number of alternatives. Public input was sought and received from the LCC and others and other routes were discussed. The audit team is satisfied that public access concerns were reasonably addressed during the planning process. Direct consultation with Pic River occurred for secondary route selection in their area of interest. Other groups had no direct interest in road route selection because their communities were outside the Forest.

3.3.7 Operational Planning

Although both plans had required elements for operational planning, this section refers principally to the 2001 FMP. Road locations were planned to minimize their effects on area of concern (AOCs). A broad network of roads exists on the Black River Forest so new road requirements were minimal. The Company and MNR have solicited and considered public input regarding roads. Road conflicts were addressed and for the most part, resolved. There were still differences of opinion in the public regarding road access, but nothing so serious as to require a dispute resolution process.

A recommendation was made in the previous audit regarding determining economically and physically feasible access into the Swede Valley. During this audit period, the Company conducted field planning and ground verification of road and crossing control points and located a feasible route into this valley. However, this information had not been formally shared with the LCC or the MNR.

Suggestion 3. The Company should present and discuss the results of the ground assessment of access to the Swede Valley with the MNR.

Areas chosen for the harvest were within the allowable harvest levels predicted by SFMM for appropriate forest units. FMP tables regarding operational planning requirements were appropriate. No timber surplus was identified.

Where a stream shown on the forest cover map at the planning stage was to be crossed, the Company developed a planned water crossing. Some of these were identified at the 2001 FMP stage; most were not. Thus, there were hundreds of *potential*[22] water crossings AOCs identified either in the 2001 FMP or in the Annual Work Schedules. Known water crossings were also identified as AOCs. Both plans contained correct prescriptions for AOCs and all of the AOC prescriptions in both plans followed appropriate forest management guidelines, including those for animals, fish, birds and tourism. All AOCs were mapped and well documented in the plan (with the exceptions noted previously). There were no AOC exceptions. There were no salvage operations: minor windfall occurrences were included in the annual work schedules (AWS) as part of existing planned harvest blocks.

Silvicultural Ground Rules (SGR) were described in the 2001 and 2006 FMPs. These rules had been developed according to planning requirements with input from MNR. Forest operations prescriptions (FOP) were prepared for each of the five years of the 2001 plan, according to requirements at the AWS stage.

The MNR and the Company conducted planning for compliance monitoring programs. The MNR had a District Monitoring Plan and the Company had a five-year compliance plan in the 2001 FMP and *Annual Plans of Action* in the AWS. These plans were understandable and contained the required elements including compliance monitoring, monitoring of AOC and silvicultural exceptions and assessments for regeneration success. Both Company and MNR staff were aware of these plans. The audit team suggested some potential improvements to MNR plans, discussed in Section 3.6.1.

In the opinion of the audit team, Company staff complied with all requirements in all material respects regarding planning and conducting renewal and tending operations. Support requirements were described in both plans, forecasts for renewal and tending were made and the levels of forecasted renewal were adequate to keep pace with harvesting. The audit team noted changes in renewal strategy to less mechanical site preparation. Where this occurred, often the area was planted immediately after harvest.

3.3.8 Plan Review, Approvals, Amendments and Contingency Plans.

The 2001 and the 2006 FMPs were signed and sealed. Reviews and approvals of both plans were carried out appropriately. There was one exception in each plan regarding clearcuts over 260 ha, and this was rationalized.

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[22] Potential water crossings – the actual number was probably less than this. Some of the mapped streams were not found on the ground. No Company or MNR summary is made of actual constructed crossings, nor is this summary required.

The relatively low number of plan amendments during the 2001 period were prepared and submitted as required. All six amendments were administrative and were required for a variety of reasons, such as type of roads required, changes in two contingency areas, and adjustment to future silviculture requirements. These changes were needed to maintain operational flexibility and the number of amendments was appropriate in the view of the audit team.

Both plans were approved and distributed before operations commenced, and the required procedures were followed for their preparation. The LCC chairman conducted reviews of amendments (administrative amendments were not required to be reviewed by the entire LCC). There were no contingency plans required or prepared during the audit period.

3.3.9 Annual Work Schedules

The AWS prepared by the Company were consistent with the 2001 FMP. Areas planned for harvesting matched the selection criteria in the management plans. The Company received input from the overlapping licensee, MNR, the public and the LCC. As noted in Section 3.3.8, forest operations prescriptions were prepared for each treatment area in the annual work schedule. The audit team found that AWS planning and approval requirements were met.

3.4 PLAN IMPLEMENTATION

Audit Principle

Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.

3.4.1 Areas of Concern

Forested reserves (buffers) and prescribed operational treatments around AOCs were designed to protect fish and wildlife habitat and other values. Buffers varied in width to protect moose aquatic feeding habitat, cold and warm water streams, lakes, tourism features and nesting areas for raptors and herons.

Special features (values) that were identified either by the planning team or the MNR biologist required protection. Protection might have been a timbered buffer, a vegetated buffer, or operational restrictions. The audit found all types of AOCs were protected during operations.

The Company was diligent in the identification and protection of the occasional previously unidentified resource feature such as raptor nests. Company staff reported these sightings to MNR and changed planning and work practices to protect these resource features.

Positive feedback from LCC and the review of buffers at the edge of harvest blocks showed that the tourism values were preserved. Protection of values was achieved by access planning, changing the road construction period to minimize disturbance, and taking note of tourism operator's concerns regarding timing of operations. Company and Ministry staff worked cooperatively to ensure that the results of the operations not only followed the prescriptions in the plan, but also were adapted to satisfy the tourism value objective.

AOC prescriptions were generally appropriate for protecting the intended value. Buffer (reserve) widths proposed in the 2001 FMP and measured in the field nearly always reflected the AOC prescription. In only two cases, the audit team observed that where there was irregular topography, the reserve width could have been changed from the prescribed width (either slightly narrower or widened) to better reflect local conditions in the field. Overall, the audit team found that the layout of slope-dependent buffers conformed to the planned widths and there were no negative impacts on fish habitat or water quality.

Very few occurrences of trespass into AOC buffers happened, and when they did, mitigation measures were taken. Where AOC protection requirements changed over time, adjustments were made. For example, an AOC reserve for railway rights-of-way (RoW) that existed in the 2001 FMP was changed to allow harvesting next to the RoW with requirements of slash removal to reduce fire hazard. An osprey nest on Straight Lake was discovered during operations, a plan amendment was made, and a buffer was applied.

3.4.2 Harvest

The rate of harvest was not even throughout the five-year period. During the first two years of the audit period, 360,000 m^3 was harvested of the total of 750,000 m^3 (48%) over the five-year period, in response to the goal to keep contractors working. An adjacent Forest did not have authority to harvest, because of a Request for an Individual Environmental Assessment, so the contractors there were moved to the Black River Forest. As a result of this accelerated early harvest, the last three-year harvest was below an even annual harvest. This shift in harvest timing affected the planned levels of subsequent renewal operations.

The clear-cut silvicultural system was used in all forest units, except lowland spruce and spruce bog. Careful logging around advanced regeneration occurred on the wetter areas of the lowland spruce and the black spruce bog forest units and the audit team noted many of these wetter areas with advanced regeneration left behind. A few exceptions to this occurred and are noted in Section 3.4.3.

The 2001 audit report noted the prevalence of roadside slash and a recommendation was made. The audit team saw that management of roadside logging debris showed some improvement; however many areas still had slash accumulations (predominantly non-merchantable). Both Company and the overlapping licensee left these accumulations. Un-piled roadside slash was observed in most blocks; a few had slash piled and burnt. Slash piles were noted on parts of the Forest (e.g. Cache Lake) where Forest Renewal Trust funds were used to finance slash "fluffing" (Figure 4). Some piles there were observed to have soil mixed in them, which could reduce the burn effectiveness. Roadside slash on Turcat and Rogers blocks was fluffed and burnt.

Recommendation 5

The Company should significantly increase their roadside slash piling and removal or burning program by the end of 2008 and should expand training and awareness of equipment operators in acceptable slash piling.

FIGURE 4: SLASH WAS PILED IN THE CACHE LAKE AREA, BUT OTHER AREAS WERE NOT PILED

In the majority of depleted blocks, sufficient numbers of snags and live trees were left behind on all blocks that were checked (6 per ha, averaged over the block). Large diameter conifer snags were often under-represented in cutovers. However, the audit team noted that Company and MNR compliance monitoring staff were satisfied with the size of conifers left on both Company and PRDC blocks.

All blocks audited but two had either no rutting or no significant/minor localized rutting. Compliance in the Forest was high regarding this issue. One block had 20 ha of rutting (logged 2001 by a new contractor) and the second had about 0.3 ha (logged 2005 by the main contractor). The cause was skidding on swampy ground that was not frozen. MNR inspectors on advice from the Area Forester investigated the 2001 instance of rutting; a non-compliance was reported and subsequently dealt with by the Company. Remedial action was taken. One main outcome of the 2001 event was that the principal contractor made significant investment in high flotation (Rolagon) tires to reduce environmental impact on wet soils. The Company and MNR noted that the 2005 instance was an isolated issue by a new contractor and the audit team found that rutting was low on all the other areas reviewed. Both Company and PRDC depleted areas generally had little significant rutting, and where there was rutting, it was caught early and preventative measures were enacted.

Timber utilization in the Forest was conducted within the requirements and was effective. This comment refers to both the Company and PRDC. See comments on individual species utilization in Section 3.7.1

The audit team noted up to a kilometer-long skid distances on about a quarter of all blocks. This reduced the length and number of on-block tertiary roads (e.g. Harriet Lake). The reasons for this were both economic and environmental. The long skids took place at times on rocky terrain on narrow, elongated depletion areas, where road construction would have significantly impacted the site. The practice of long skidding did not appear to significantly increase roadside or landing slash piles and the use of the high flotation tires on skid equipment ensured low soil impact on the sites viewed with long skids.

Best Practice

Tertiary roads were minimized on some blocks, which led to less productive land being taken out of the forest land base.

3.4.3 Renewal

The audit team reviewed 20 blocks for artificial renewal activity (11 for site preparation and nine for planting). Where there was nearby natural regeneration planned (four sites), the team assessed the potential success of this prescription. Overall, forest renewal was occurring either as initially planned in the FMP or subsequently as planned from site visits. The audit team found that Company staff was knowledgeable and diligent in planning and executing the renewal program.

The renewal program generally matched the harvest program in area over the period (Section 3.7.1, Table 10, Part 4). A greater proportion of planting was planned versus what was

actually carried out (planned 3,260 ha; actual 1,340 ha). Conversely, more area was prescribed for natural renewal than what had been planned (planned 4,533 ha; actual 6,500 ha). General levels of site preparation did not meet the planned levels (planned 3,261 ha; actual 2,532 ha); however this reduction did not appear to the team to preclude future regeneration success. The renewal activities that the team reviewed were described in annual work schedules. These activities were carried out according to either the preferred or alternative silvicultural ground rule for that forest unit-site type and the forest operation prescription. Nearly half the areas silviculturally treated during 2004-05 and assessed in the KPMG Specified Procedures Report were reviewed in the field by the audit team. The treatments indicated on the Company maps were found to be accurately described, existed on the ground, and were consistent with the data shown in the KPMG Report.

The Company usually planted areas within jack pine and some spruce forest units and site types. Lowland spruce was generally left for natural regeneration and careful logging around advanced regeneration was carried out (see comments below and in 3.4.2). Other areas targeted for natural reforestation were hardwood areas. The strategy for renewing mixedwood stands was a combination of both planting and natural, depending upon the Company inspection as to which prescription was likely most effective on a particular site type after harvesting was complete. Areas prescribed for natural were reported at the end of the period: November, 2007. See Section 3.6.2 for a fuller discussion on reporting natural regeneration.

There were examples of planting white spruce and the promotion of natural in-fill of other species to augment the jack pine/black spruce-planting program. SGRs were shown for all sites to be logged and FOPs were prepared annually, during annual work schedules. After depletion, sites were monitored to either verify or amend the prescription and to determine what the best treatment(s) should be, either natural or assisted, or both.

The audit team found that the Company's regeneration activities, both natural and assisted, were successful overall and depleted areas were being renewed at a pace that was reasonably consistent with harvesting activities. Assisted renewal activities usually commenced with moderate mechanical site preparation with Bracke plows (early in the audit period). During approximately 2003 and onward, the Company's artificial renewal strategy changed. Planting occurred without mechanical site preparation, but at times with chemical site preparation. The audit confirmed that these activities were being carried out appropriately, materially in conformance with the plan, and in a manner to promote future establishment and growth of commercial tree species.

On areas prescribed for natural regeneration, the audit team checked sites depleted during 2001 and 2002. This showed that on three of the four areas, natural regeneration was proceeding according to plans. On the fourth area prescribed for natural regeneration, the audit team noted slow in-fill of natural seedlings. This block had been previously assessed by the Company and plans had been made to plant the area during 2007. The strategy of prescribing natural regeneration, followed up by an initial monitoring visit and then a further visit three to five years after harvest appeared to be a reasonable strategy, in the view of the audit team. This conclusion was supported by the large success rate shown on naturally regenerated areas during the free-to-grow audit.

There was no aerial seeding program. This practice might be used in future where appropriate to the site, for example after a wildfire.

As noted above, the Company change in renewal strategy to more chemical site preparation or early aerial tending was very effective. Early aerial tending one to two years after planting was a successful technique used on blocks threatened by brush. There were three good examples of chemical-site prepared and or early aerially tended blocks (Ice Creek, Pinegrove Road and Banana) that showed excellent initial growth (Figure 5). On these blocks, the height of black spruce and jack pine seedlings on many areas after two growing seasons were up to 1.5 m tall in places. This move to chemical site preparation, followed by timing changes in aerial tending practices showed adaptive management and will allow more selective tending activities later that could preserve more poplar while reducing brush competition. When this strategy becomes more widespread on brushy sites and its success becomes consistent[23], the strategy may become a best practice in future.

FIGURE 5: EXCELLENT GROWTH OF PLANTED JACK PINE ON CHEMICALLY SITE PREPARED AREA

The Company generally achieved high renewal rates on depleted areas; both during the past five years for assisted renewal and in the years previously for both natural and assisted renewal (see free-to-grow comments in Section 3.6). The majority of harvested areas not scheduled for natural regeneration were planted quickly, within one to four years after harvest.

One exception to the generally successful natural regeneration strategy was found on two lowland spruce areas that had been strip logged 15 to 20 years ago. Harvesting of the remaining spruce strips was carried out during 2005-06 (e.g. Lampson South). The silvicultural ground rule (SGR) for SB1 was for natural reforestation of these harvested leave strips. However, there are

[23] One block that had been chemically site prepared showed poor aerial spray effects, nevertheless was planted the following year. Planting was reasonably effective. Some areas on this block had been mechanically site prepared and natural seeding was planned for and was occurring.

few nearby seed sources. Given the slow regeneration rate on three lowland spruce blocks (one viewed from the air, two others by foot) on areas viewed during the free-to-grow (FTG) audit, early monitoring and perhaps planting wetter areas on the SB1 Forest Unit may be a better regeneration strategy.

Suggestion 4. The Company should assess recently harvested black spruce leave strips within three years, to determine whether brush is taking over the site and that the natural regeneration prescription is still appropriate.

3.4.4 Tending and Protection

Tending practices focus on aerial spraying of herbicides (usually glyphosate). Signs in three languages (English, French, and Ojicree) were posted in advance of herbicide application. Tending reduced competition by poplar, birch and some brush species. However, it was not so rigorously carried out to create pure tree species stands. There were many examples during the audit of free-to-grow stands containing multiple species.

The auditors found that reforested areas were being tended on time and that herbicide treatment was effective while protecting areas that should not have an application. Young stands in general appeared free from competition and there were few instances of overtopping by brush. The team noted some emerging plantations or natural regeneration with some alder competition; however this was not serious and was limited in area.

In all of the SGRs reviewed during the audit, the audit team noted there were no tending alternatives shown except aerial spray. The Company's strategy was to review SGRs in light of new circumstances after harvest or after surveys. SGRs would be amended where needed and justified.

The most common pest on the Black River Forest was the spruce budworm that started an epidemic during the 1970's. There were observations of other pests on a few blocks, such as scattered damage by the pitch nodule moth. Subsequent to the field audit, the Company checked the attacked areas noted by the audit team and was advised by an expert that this species was endemic and of low risk to plantations. The population appeared to be low and very little significant tree damage had occurred.

The audit team observed that no pre-commercial thinning has taken place over the last 15 years. There were a few stands that regenerated during the 1980's from the "Bracke with simultaneous seeding" method (i.e. multiple seeds were dropped in each scalped patch). These patches now have multiple trees per patch growing (Camp 70 road, tree height is approximately 10-15 m). It is unknown whether thinning would be appropriate or not and whether the extent of this treatment was significant. The "Bracke with simultaneous seeding" method has been discontinued.

Suggestion 5. The Company should review the 1980's seeded Bracke scarified areas to determine if further tending is warranted.

3.4.5 Renewal Support

The principal renewal support activities were seed collection and growing of seedlings. Both were conducted through contract and adequate levels of support existed for the renewal program. Seedling quality was being monitored during planting projects and feedback was given to the contract grower. There were instances where volumes of seed lots were low; new seed was collected where needed. The Company and MNR participated in renewal research and development, such as genetic improvement of seed. For example, the Company supported the Superior Woods Tree Improvement Association, which provided tree improvement research and education. The MNR had an Area-level research program on Natural Regeneration of Black Spruce on Lowland Sites. This program is continuing and seeks to determine if lowland sites are becoming properly regenerated, and if not, the factors that are affecting this.

3.4.6 Access

Road construction, maintenance and abandonment practices were reviewed. Only one primary road was constructed during the audit period: 2 km of the Ice Lake Road. Ice Lake Road was constructed according to requirements. Secondary roads included extensions to roads in the Cache Lake and Ice Creek area. The majority of roads constructed during the period was tertiary, both summer and winter and principally on-block. Construction of new roads (mostly tertiary) met the requirements, including establishment of crossings during the required timing windows.

There were two significant challenges to planning and constructing roads:

- Taking users conflicting road needs into consideration, such as hunters and anglers wanting more road access and remote tourism operators wanting less.
- Construction of crossings over fish streams within a limited timing window related to fish usage of the habitat.

The planning team and the Company met these challenges and planned roads by taking a wide variety of users' into consideration and by constructing roads and crossings effectively. New roads had been constructed within the planned corridors and the road quality met the requirements.

Water crossing strategies included both permanent and temporary structures. Temporary structures were used mainly on winter blocks on tertiary roads. The temporary structures were usually either portable steel bridges (e.g. Three Rock Road block), wooden bridges or snow bridges. Installation and removal of the temporary structures was carried out well.

Permanent structures on the Forest implied greater than five years of expected use and typically employed steel girders for stringers. Only one new major water crossing was upgraded during the period, a bridge over Barehead Creek. This bridge had been washed out twice before the current audit period because the abutments were too low. These abutments were raised during the audit period and the work was effective. The audit team found that this bridge was constructed to specifications.

The audit team focussed attention on new culverts larger than 1000 mm and reviewed the majority of these during the harvest audit on the block. Most smaller crossings were metal culverts. There were 36 new crossings reviewed on the twelve sample blocks audited. Many older crossings were also inspected; however the total number was not noted. The audit team noted that a few older culverts had potential for sedimentation. As noted with minor exceptions, all structures inspected met the construction standards (Figure 6). When the Company performed inspections, problem culverts were noted if they required repair immediately.

During crossing structure installation, the majority of practices relating to crossing protection were completed. On sites with erodable soils, evidence showed erosion control practices were used, such as silt fences, grass seeding and rip-rap.

FIGURE 6: CHAIRMAN OF THE LCC INSPECTS A CULVERT.

The major road characteristics that were reviewed were safety items such as right of way width, alignment, grade, road surface width, signage, and grubbing, and best practices such as debris disposal. Roads met all requirements and were effectively constructed and maintained.

Older (and the one new) bridge structures, culverts and surface approaches to bridges were reasonably well maintained, with the minor exceptions noted below. There were occasional occurrences associated with beavers blocking culverts. These events were being attended to on a regular basis to repair them if there was an immediate threat. Maintenance practices included grading, brushing of roadside vegetation, maintenance of signage, and drainage control. Maintenance activities matched the plans and the guides for maintenance[24]. All users could use the active roads safely. However, a few instances of minor sedimentation into streams near crossings and an occasional failing culvert on unused roads were noted.

The Company entered into an agreement with the Crown to be paid for maintenance of primary roads during 2005. These roads were used not only by the forest industry, but also by

[24] MNR. 1995. Environmental Guidelines for Access Roads and Water Crossings. Queen's Printer for Ontario. 65 pp.

miners, recreationists, and other stakeholders. The audit team reviewed the roads eligible for this payment and found that the primary roads were maintained according to the agreement. The principal contractor sent maintenance invoices to the Company and the audit review showed that unit costs for equipment and the road distances that were maintained were reasonable. The Company paid the invoice and received the appropriate fees from the Crown.

PRDC's maintenance operations were excluded from this program during 2005 because it had secondary, not primary roads to maintain. This program was expected to be extended to 2006 for both primary and secondary roads, which would make PRDC eligible for reimbursement for road maintenance on secondary roads to its harvest blocks.

On new roads, nearly all culverts were stable and had either rip-rap or were vegetated to minimize erosion. However, in two instances, excessively large rip-rap (large boulders) was crushing the culvert and in one instance, sediment was entering the stream through the spaces in the boulders. There were older roads that will be used during the 2006 FMP (e.g. Swede East Road, Pinegrove Road). The audit team noted that a deteriorating old culvert on Pinegrove Road had a risk of failure. There was a beaver dam on the upstream side, and if it broke, there was potential for an environmental impact (Figure 7). In a second instance, a broken steel wing-wall that was welded to the culvert was supposed to be repaired, but the broken piece was still sitting in front of the culvert. In a third instance, there were signs that sedimentation from erosion around a crossing was entering the fish stream. (MacGraw Creek). The audit team felt that sedimentation was minor and did not warrant a specific suggestion for this stream.

FIGURE 7: BEAVER DAM AT INLET OF OLDER CULVERT. BEAVERS CONTINUED TO BE A CHALLENGE FOR CULVERT MAINTENANCE.

Of the five older bridges inspected for maintenance, two showed indications that gravel was being graded across (e.g. Fox Creek and Little Black River). As well, minor amounts of

road material entered Fox Creek through gaps in the sidewalls of the deck. There were also indications of sediment entering this creek at the wing wall on the bridge deck approaches.

Potential actions to reduce or manage sedimentation include:

- Instructing grader operators not to grade so that material enters a stream.
- Improving sediment control on the "wings" of the Fox Creek Bridge near the Company office.
- Continuing to maintain rip-rap on culverts.
- Considering a more formal road or culvert tracking system. This will allow targeting "at risk" culverts for more frequent monitoring, reducing the potential for failure, and permitting subsequent analysis if a culvert does fail.

Overall, the team observed minor road edge or bridge scouring and minor sediment flows in at least four instances. Road sediment entering fish-bearing streams may be an infraction under the Canada Fisheries Act[25]. Despite this observation, the cumulative effect was judged to be minor, and a suggestion, rather than a recommendation was warranted.

Suggestion 6. The Company should increase efforts to reduce sedimentation going into streams.

The Company inspected roads for maintenance requirements; however the inspections were ad hoc and at times not recorded. Where maintenance was required, reporting occurred and the road or culvert was repaired. The MNR also inspected some old culverts and roads. There was no coordinated inspection program on old roads between Company and MNR. The audit team found that the informal inspection arrangement worked well for the most part and was appropriate at the time on this relatively small forest. At the time of publication of this audit report, the team notes that the Company is moving towards a more formal inspection program.

Table AWS-4 was a new table in the Annual Work Schedule for the 2005-06 year regarding road construction and use. This table was completed by the Company and accepted by the MNR. In addition to construction, maintenance and abandonment, AWS-4 showed road monitoring plans as required by the transitional requirements of the 2004 FMPM. The Company plans to classify and inventory all roads in 2007 according to the FMPM requirements. The audit team determined that monitoring was carried out according to 1996 and 2004 FMPM requirements and a more formal program is planned for 2007.

The Company carried out abandonment practices on its roads according to the requirements. There were no naturally abandoned primary and secondary roads and a few naturally abandoned tertiary roads. In addition, there were few examples of road physical abandonment on the Black River Forest. On five sites, it was observed that removal of the temporary crossings (including one portable steel bridge, two log bridges and two snow bridges) was carried out with minimal negative environmental impact.

[25] The Department of Fisheries and Oceans would need to determine whether the level of sedimentation actually is an infraction under the Act or not. The audit team has seen instances of road sedimentation entering fisheries streams where the DFO felt that the levels were minor and that the sedimentation was not deleterious to fish.

3.5 SYSTEM SUPPORT

Audit Principle

System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.

3.5.1 Human Resources

Through interviews and observations, the audit team concluded that MNR and Company staff were competent in their positions and had been taking relevant and appropriate training. Both Company and MNR staff had certified compliance inspectors. MNR had an internal system to track staff competencies and to plan for future training needs. Company staff determined their own training needs.

Communication within both the MNR and the Company was ongoing during the audit period. For example, MNR had meetings, sent email, and had on-going verbal communications. Company communication tended to be informal and staff relied more on verbal communication. The audit team found that informal communication worked for the Company.

There was generally good communication between the Company and the MNR. However, the audit team noted instances where Company and MNR staff did not always agree on a compliance issue (e.g. around decommissioning a winter stream crossing or renewal of the wet phase of the SB1 Forest Unit). It appeared to us that at times, some staff were not accepting of others' points of view. This apparent lack of communication was in the minority.

Suggestion 7. Both the MNR and the Company should improve communication between organizations, chiefly with respect to compliance.

Many staff in both agencies kept periodic records of agreed upon actions and information discussed at meetings; others did not. The audit team felt because of the somewhat ad hoc maintenance of meeting records, that there might be actual or potential loss of information. Potential or actual losses of information during transition periods were of particular importance regarding MNR biologists. During the 2001-06 FMP period, there were six biologists[26] on MNR staff. Additional resources may need to be provided to biologists, technicians, and/or GIS personnel to ensure that information is FIM-compliant and managed effectively. For example, data needed to be entered into NRVIS in a more timely fashion and kept current. Better data management and a communications strategy was required so that information was not difficult to find during personnel turnover.

Suggestion 8. The MNR should develop a more effective information management and communications strategy to avoid information loss during staff (especially biologist) turnover.

[26] The group of six biologists comprised both contract positions and employee positions. Some served more than one period; in total there were nine periods with a different biologist.

3.5.2 Documentation and Quality Control

The audit team found that documentation and records were being managed appropriately. All relevant documents were available to the audit team. FMP documents were well controlled. Six amendments were correctly prepared for the 2001 FMP. All significant documents and records were in electronic form. Both Company and MNR had off-site electronic backups and vaults. Both organizations had effective file management systems and kept original documents in the office. There was a procedure for handling public letters arriving at the MNR office. If the person normally assigned document control was away, an alternate dealt with it.

Virtually all the important documents were signed and dated. A minor exception was that the 2004 terms of reference for the LCC was not signed.

Suggestion 9. The MNR should sign the next terms of reference for the LCC.

Company and MNR individual staff were knowledgeable about the location of forest management documents and records, within their areas of responsibility. Procedures for controlling, archiving or disposing of obsolete documents such as old management plans were in place for both auditees.

The Company and MNR maintained and operated an effective GIS mapping system. For the Company, the GIS system was used to automate the entry and retrieval of harvesting and silvicultural records and incorporate supplementary aerial photography on depleted blocks. This allowed for easy retrieval of records, automated scheduling for follow-up treatment or assessment, and the production of a variety of themed maps. MNR also had documents in both digital and paper format. File reviews at the MNR office, the Company's office in Thunder Bay and Manitouwadge revealed consistency between file records and GIS data.

3.6 MONITORING

Audit Principle

The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.

3.6.1 General Monitoring

Discussions of compliance monitoring programs were included in each FMP. The responsibility for these programs has shifted over time. For 2001 and 2002, the MNR was more involved with compliance monitoring. During the period from 2003 to 2006, the responsibility changed to Company monitoring of operations; the MNR had an audit role. The MNR conducted both periodic field reviews of Company inspections and carried out independent inspections. During 2005-2006, the harvest contractor to the Company trained a staff member who conducted harvest and road inspections and reported these directly to both Company and MNR. The Company audited the contractor's work and monitored PRDC operations.

The audit team found that compliance inspections were carried out according to procedures and results were reported from the Company to MNR according to MNR guideline[27] and policy[28]. For the few instances of non-compliance, the Company reported these in the time period required. Both Company and MNR inspectors had appropriate monitoring training and were certified to conduct the inspections on access, harvest, renewal, stand maintenance, and protection operations.

The audit team reviewed monitoring procedures, plans, records, and reports. Nearly all operations, including PRDC, received at least one inspection by the Company. Inspections occurred during harvest, at shut down, and upon completion of the block. As noted previously, the Company had an Annual Plan of Action for compliance monitoring for each of the five years, with the content matching the MNR's compliance policy/guideline requirements. The MNR had a District Monitoring Plan for compliance that stated that 10% of companies' inspections were to be audited on a risk-ranked basis among companies and forests within the District.

The MNR and the Company entered inspections into the MNR system and generated electronic reports. There were two electronic reporting systems in use from 2001-2006. The first, the Forest Operations Compliance Inspection System (FOCIS) was used until 2004. The Forest Operations Information Program (FOIP) came into use during early 2005. There was a transition period over the last five years, as Company inspectors became primarily responsible for entering data into the two systems.

The monitoring inspection frequency was high at the beginning of the period by both organizations. The monitoring frequency was appropriate at the end of the period by the Company. The audit team noted a few instances of inspections carried out together.

Table 8 describes inspection reporting on the Black River Forest. Inspections focused on harvesting (130 inspections out of 259 for the first four year period); however, access, renewal and maintenance were reviewed as well.

TABLE 8: INSPECTIONS PLANNED AND CONDUCTED ON THE BLACK RIVER FOREST

Organization	Year										First four years	
	2001-02		2002-03		2003-04		2004-05		2005-06			
	plan	actual	plan	actual	plan	actual	plan	actual	plan	actual	plan	actual
Company	104	103	70	53	80	36	79	11	72	9 (incomplete)	333	203
MNR[29]	N/A	23	N/A	16	N/A	16	N/A	1	N/A	2	N/A	56
Total		126		69		52		12		11		259

Source: plan data are from the Company annual compliance plans, actual data are from 2001 to 2005 Annual Reports, 2005-06 data are from the FOIP reports. N/A-not available. 2005-06 reports were not due until November, 2006.

MNR inspections continued throughout the period with a high during 2001-02 (126 inspections) and a low during 2005-06 (12 inspections). The reason for the high inspection rate

[27] MNR. 1998; amended 2005. Guideline for Forest Industry Compliance Planning. 24 pp.

[28] MNR. 2001; amended 2005. Policy ENF. 22.02.01, (FOIP reporting) 11pp. and Procedure ENF. 22.02.02 (Inspections and reporting procedures) 17 pp.

[29] MNR planned inspections varied from company to company, based on risk ranking. No annual rate of planned MNR inspections was made for the Black River Forest, nor were a specific number of inspections required.

during 2001 was that there were more blocks depleted during that year and some blocks had up to four contractors working on them. The risk was low during 2005-06 since fewer blocks were depleted and there was one Company contractor for roads and harvesting and one for the PRDC.

The Company provided periodic status reports of logging and forestry activities to MNR. These provided the required notification of start-up and completion. The Company advised MNR of changes in the Annual Plan of Action, where these were necessary and appropriate.

Both the Company and PRDC had a high compliance rate during the 2001 FMP period. During the first year, there were seven MNR-reported non-compliances (three harvest and four access, six out of seven were minor, and one was moderate). There were two Company-reported non-compliances, both minor. All were dealt with appropriately and there were very few non-compliances from 2002 to 2006. There were no unresolved disputes noted in the reports.

As described above, the MNR conducted compliance inspections of operations, especially harvesting and roads. However, not all categories of operations received consistent inspection reporting. It was noted that limited documented MNR inspections occurred on tending and renewal (all years) and roads (2004, 2005). The audit team agreed with the strategy to have a relatively low inspection rate on the Forest, because the compliance history was high and the contractor was experienced. Nevertheless, MNR field oversight was almost completely lacking at the end of the audit period, especially where there were zero inspections for some operations. From a good management perspective, there ought to be a minimum number of inspections planned and conducted annually for each of the operational categories. A total of three MNR inspections over two years was not reasonable. The audit team noted that the MNR biologist had not been field monitoring because he was focussed on planning activities for the upcoming Black River Forest 2006 FMP.

Recommendation 6

The MNR should determine a realistic minimum number of inspections annually and meet this target.

The Company monitoring frequency did not meet the planned levels, but in the opinion of the audit team, the actual levels were appropriate in view of the low harvest and road construction levels for the last two years. Monitoring occurred through all types of operations.

There were few joint site visits during the latter part of the audit period. Joint site visits were useful to come to common understanding of compliance issues, where standards of compliance were not clear. An example of this is that there was guidance, but a lack of measurable standards for equipment rutting of soils in Ontario. Both Company and MNR inspectors were competent and knowledgeable about this issue. Nevertheless, when new staff was assigned inspection duties, it might take a considerable period to come to a local agreement as to what constituted unacceptable rutting. During the audit, the team noted a difference of opinion regarding the quality of removal of a temporary stream crossing between the Company and MNR. This was resolved; however the fact that this inspection was one of two MNR inspections during the year provided little opportunity for each organization to view or understand the other's perspective on interpreting subjective standards.

Suggestion 10. The Company and the MNR should conduct more joint site visits on a regularly planned basis.

During the last part of the audit period, the MNR inspected old culverts on pre-1988 roads for public safety. The MNR and Company did not decide who was responsible for inspecting old culverts from 1988 to the current plan term. The audit team noted that the Company reported older culverts if there was a significant problem with them. It arranged to trap beavers in areas where they were a problem. There is an audit team comment about developing a culvert tracking system and Company plans for a road inventory are described in Section 3.4.6.

Suggestion 11. The Company and the MNR should determine which agency is responsible for monitoring old culverts.

The Company had an active monitoring program for renewal. Renewal monitoring began with a site visit after harvest to determine if any changes to the renewal strategy on the block were needed. On areas planned for extensive renewal (natural regeneration), a natural regeneration survey was made usually five years after harvest. Monitoring for success of intensive renewal treatments began with a planting quality inspection, followed by installation of permanent sample plots. Survival/Competition assessments were carried out, and where appropriate, post-tending assessments. Free-to-grow assessments were conducted. The audit team found that the renewal monitoring program was overall effective and compliant, with the exceptions noted below. Figure 8 shows naturally regenerated low land black spruce, which is free-to-grow.

FIGURE 8: FREE-TO-GROW LOWLAND BLACK SPRUCE

During 2003, the Company performed over 11,000 ha of aerial free-to-grow surveys. Some 8,927 ha were declared free-to-grow. The MNR checked some of the areas after the

information was delivered to them and found the surveys were reasonably carried out. The audit team confirmed the free-to-grow assessment during the helicopter flight, with suggested improvements discussed below.

On the sampled areas, the audit team verified that 99% of the surveyed units was FTG. The 1% remaining area that was declared FTG had significant portions inside the polygon that were FTG and some portions that were not, in the audit team's opinion. The conclusion is that the Company free-to-grow aerial survey showed acceptable regeneration results. The data were used to update the forest resource inventory for the 2006 FMP. The audit team found that the aerial survey methodology that was used met the requirements of the Silviculture Effectiveness Monitoring Manual for Ontario[30]. However, from a quality/effectiveness perspective, the methodology used gave statistics that could have been compiled in a better manner. It appeared that no ground verification of the statistics for stocking was carried out, especially for the 25 ha that were reported as, but not free-to-grow.

The audit team observed that although the Company estimates of height and species composition matched the audit sample estimates, the Company estimate of stocking was 100% on many areas. The audit team found many sample sites were closer to 80% stocking. Although the Company estimates were generally acceptable, they seemed to have a consistent bias.

A second observation was that on many harvested units, the survey combined artificially and naturally-reforested polygons into one FTG unit. This blended the free-to-grow stand statistics regarding species, stocking, height, and age within the new polygon. This made analysis of regeneration success difficult on all naturally regenerated areas, and especially in lowland spruce, where MNR concerns had been expressed.

A third observation by the audit team was that there were significant growth and stocking differences between the upland and lowland portions of the SB1 Forest Unit. Within two of the audit survey areas, a walkthrough by the audit team showed:

- In the wetter lowland spruce areas, there were small portions (sub-areas) totaling about 25 ha with poor stocking.
- The tree heights were shorter than the upland area.
- These sub-areas were not FTG.

These relatively small non-FTG areas could have been mapped out (they were greater than 4 ha), but were not required to be stratified as a separate polygon for forest inventory purposes. There are minimal forest inventory stand boundary and size (stratification) standards in the FMPM. MNR policy is inconsistent: the minimum size of polygons to be stratified varies from silvicultural treatment polygons (4 ha plus) versus forest inventory polygons (8 ha plus).

Suggestion 12. The MNR should develop consistent forest inventory stratification standards.

[30] MNR. 2001. Silviculture Effectiveness Monitoring Manual for Ontario. Queen's Printer for Ontario. 42 pp.

The MNR stated that they had conducted independent regeneration surveys on depleted lowland spruce blocks and found a lack of regeneration on some sites. The MNR indicated that it focussed attention on the wetter portions of the SB1 Forest Unit on areas planned for natural renewal. As a result of this concern, the audit team reviewed a small sample of four areas classified as SB1: 11-20 years old that were planned for natural regeneration and not declared FTG during the 2003 survey. The purpose was to estimate the likelihood of these areas becoming naturally regenerated. The results of the small audit survey showed that:

- Two of the four samples were within the lowland/wetter part of the SB1 Forest Unit. One of these two areas was stocked with black spruce and proceeding to FTG, the other had poor stocking and required treatment.
- Of the two upland samples, one was stocked with a variety of species, likely proceeding to FTG. The other was not stocked and required treatment.

There may be some issue around regeneration success in the lowland black spruce Forest Unit; however the audit survey was too small to draw substantive conclusions. Further work on analysing regeneration success on lowland sites would be useful. The Company was in the process of planning for more FTG surveys (summer and fall, 2006).

Suggestion 13. The Company and the MNR should collaborate on designing a FTG survey that will provide sufficient data to analyse if there is a regeneration problem on harvested SB1 lowland sites.

The MNR monitored a range of indicators for other forest resources on the Black River Forest. This included periodic (i.e. every five years) population surveys for bear, moose and fish and pre-plan surveys of stick nests and moose habitat in the areas of planned operations. Values maps for the Forest were updated on a periodic basis through NRVIS; however more work was needed on this (see Section 3.3.5).

The Company monitored silviculture activities, both during and after operations to determine further treatments. There was one exception to the silviculture guidelines noted in the 2001 FMP to allow clearcuts larger than 260 ha in order to emulate historical natural depletion patterns caused by wildfire. Monitoring of large clearcuts was occurring.

3.6.2 Annual Reports

Annual reports, including text and tables, were prepared and delivered on time in the format required by the 1996 and 2004 FMPMs and the FIM. Overall, the annual reports met the requirements and were accurate, with the exceptions noted below. Results shown in annual reports were used during the preparation of future AWS. Changes to provincial standards (e.g. Forest Information Manual requirements during 2003 and 2004) were reflected in the ARs.

Bypass areas were being reported as required. These were small in extent and the bypass areas that were field reviewed were classified correctly. Not minimizing and not reporting bypass was listed as an issue in the 2001 Independent Forest Audit. The 2006 audit team found that the Company minimized bypass and significantly improved utilization of types of stands that were bypassed during the 1996-2001 period because of lack of markets at that time.

There were no native communities within the Black River Forest. The closest community, (Ojibways of Pic River First Nation) actively participated in forest management opportunities, either directly or through the Pic River Development Corporation. The MNR annually reported on compliance to T&C 77 (now Condition 34).

From 2001 to 2006, aerial photographs were taken of operating areas, scanned into the GIS system and depletion maps were made. These maps were used for depletion reporting.

During the last two years of the audit period, revisions to the delivered reports, both by the Company and the MNR sometimes took longer than the time allowed (30 working days after receipt of the annual report, as shown in Sec. 2.4, part D of the FIM).

Recommendation 7

The MNR and the Company should respond within the FIM designated time frame with changes to future Annual Reports, resubmissions, and approvals.

The audit team noted that in table AR6 (now AR7) for the 2003-04 period, chemical site preparation data were incorrectly attributed between aerial and ground. The 3,261 ha forecast was shown as ground, instead of aerial and the actual results were shown as 1,064 ha aerial and 1,296 ha of ground, which was reversed.

Suggestion 14. The Company should carry forward 3,261 ha of ground chemical site preparation to aerial and to update the figures to 1,064 ha ground and 1,296 ha aerial in the "actual to date" column in the next AR7 annual report and Year Ten Annual Report.

The Company did not report the area of natural regeneration in the year the area was depleted, as required by the audit team's understanding of the intent and the wording of the 1996 and 2004 FMPMs[31]. The reason was that the Company interpreted the natural reporting requirement as being flexible and it reported the five year total natural prescription in the 2005-06 AR. The Company's position was that reporting at the end of the period was more practical than reporting it annually.

A difficulty with reporting annually is that during the next year, the area of natural could change, and often did, as a result of the on-site field inspections carried out immediately after depletion. Some areas of natural prescriptions were, in fact, planted. Other areas planned for planting were scarified and left for natural regeneration (e.g. Turcak Lake block). This meant that the natural regeneration statistics for the following year would be misleading. The audit team understands this; however, our opinion is that annual reporting of natural regeneration was required, despite the awkward accounting that may occur in years following.

[31] MNR. 2004. 2004 Forest Management Planning Manual, page E-3, phase-in provisions, and page E-8, lines 36-40, reporting of natural regeneration.

The MNR District did not require the Company to change its practice of not reporting the area of natural prescription until the end of the period. Not reporting annually created difficulties at the Forest Management Branch level. Forest Management Branch has the responsibility for annual oversight of all SFLs and lack of information on natural regeneration prescriptions makes it difficult for accurate analyses/assessments during the preparation of consolidated management unit annual reports.

Training for the implementation of the 2004 FMPM was conducted by Corporate MNR, including annual reporting requirements. Nevertheless, it is evident from the lack of change in the natural regeneration annual reporting strategy by the Company, and the lack of insistence by the District MNR to do this, that this aspect of the training was not effective. Otherwise, there ought to have been information about natural regeneration in the 2004-05 Annual Report, and there was not.

Recommendation 8

The Company should report the area of natural regeneration prescriptions annually; the MNR District should ensure that reporting is carried out; and Corporate MNR should improve training for both District and Company staff.

3.6.3 Report of Past Forest Operations

The content of the 1996-2001 Report of Past Forest Operations (RPFO) materially complied with the requirements of the period. Discussion of trends was carried out as required, with the exceptions noted below regarding the analysis of success of natural regeneration prescriptions and clearcut size and frequency analysis.

Content of the RPFO included summary reports of the operations that occurred, discussion of variation from planned levels and conclusions and recommendations for the preparation of the 2006 FMP. The RPFO contained an assessment of forest sustainability, the achievement of management objectives and a review of the assumptions made for the analysis of management alternatives in the 1996 management plan. The content materially met the requirements of the 1996 Forest Management Planning Manual, with exceptions noted below.

All of the tables shown in the RPFO were prepared in the required format. Spot checks of the data from the annual reports were made that indicated that the RPFO tables were reasonably accurate. Minor discrepancies were noted and were adequately explained.

A draft RPFO was prepared for stage one of the public consultation process and a final was produced for stage two. Timing of the draft and final RPFOs met requirements. An overall summary was prepared in the 1996-2001 RPFO and was reviewed by the planning team and the LCC. The audit team concurred with the RPFO conclusions on forest sustainability and achievement of management objectives, despite lower levels of harvest and renewal than planned. Although the planned levels for depletion and renewal were not achieved, reasons for this were adequately explained. The Company and the MNR implemented most recommendations and suggestions described in the 1996-2001 RPFO.

The audit team found that analyses were materially carried out. For example, the RPFO showed in the depletion analysis that the volumes harvested were significantly lower than planned. This was due to large bypass areas relating to adverse terrain and low timber yields in budworm-attacked stands. Other reasons were poor hardwood markets and less need for the allocation than planned, especially in poplar and birch. Utilization of poplar and birch had increased substantially since the 1996-01 period. It was noted that the 1996-2001 RPFO did not quote the bypass finding from the 2001 Independent Forest Audit, perhaps because it highlighted bypass issues that were already known and described in this RPFO.

Most but not all planned road construction was completed. The variance was because fewer roads were required for the reduced harvest. Discussions of proposed road locations and construction were carried out with affected tourism operators and concerned public regarding limiting new access to fisheries lakes.

Some tables were not shown, principally because there were no annual report tables to support the RPFO tables. Missing tables were RPFO 5 (Volume of Natural Depletions-there were none during the period), and Tables 13, 15, 16, 17, and 19. Table 13 related to projected versus desired future forest condition and was not prepared because the forest units changed over time and comparisons would be meaningless. Tables 15 to 17 related to sustainability measures such as diversity indices, habitat of selected wildlife species and landscape processes. Again, there were no annual report tables available for these RPFO tables.

Table 19, frequency/distribution of clearcut and wildfire sizes was not included in the RPFO because there were no large wildfires at that time and the Company stated that clearcut size and frequency was not readily available. The Company proposed that Table 19 for clearcut distribution did not need to be completed because of the significant extra work involved at the time and the MNR District concurred. The audit team determined that the clearcut analysis would have required a special study for the 1996-2001 period in order to create an accurate table.

Nevertheless, the transitional requirements of the 1996 FMPM required the table. It states that "*where specific data is readily available on clearcut size and frequency, it is expected that this information would be included in the format of Table RPFO-19*". The table, flawed though it might have been, was still a requirement for the production of the 1996-2001 RPFO and in the opinion of the audit team, should have been prepared.

Since this finding related to the audit period to March 31, 2006 and this audit report date is 2007, it is worthy to note that the clearcut analysis was carried out for the Year Ten Annual Report, completed after the audit period during fall, 2006. Thus, no recommendation is offered, because the issue has been dealt with.

Renewal treatments were lower than planned, corresponding to either lower areas to renew or changes in treatments based on post-harvest inspections. The RPFO noted less mechanical site preparation than planned and reasonably explained why, in the view of the audit team. Planting was also lower than forecast, based on less logging, a decision to plant at lower densities and the practice of not planting close to block boundaries to allow for natural regeneration fill in. The RPFO noted that slash accumulations close to roads also reduced the

area available for planting or natural regeneration. The RPFO also described less chemical aerial tending and an unknown impact of the reduction on aerial tending on emerging new stands.

Nevertheless, audit field observations indicated that a large majority of silvicultural treatments during 1996 to 2001 were successful. Natural regeneration was mostly occuring as planned on sites the Company did review. The audit team estimated a 98% success rate for achieving natural regeneration, which was considered very good on the areas the Company inspected. However, there was little analysis on expected renewal success on areas the Company did not look at, for areas planned for natural regeneration. As noted previously, there are edge areas in plantations planned for natural regeneration, small areas in natural FTG areas which have low stocking, brushy patches in old spruce budworm-attacked stands which were logged (but may not have been treated) and no discussion was in the RPFO that these areas (usually small sized, a few ha in area) were either tracked or analysed. See Suggestion 12 in Sec. 3.6.1.

Table RPFO-8 showed 5,833 ha were assessed and met the regeneration standards out of 6,385 ha planned. The reduction was due to delays in downloading data which resulted in lost data and re-surveys being required, a lack of access in one large area scheduled for survey and a lack of surveys in untreated cutover areas. These explanations are reasonable, but also support the audit team's observation of possible lack of tracking/surveying of untreated areas or areas prescribed for natural regeneration, especially for smaller depleted polygons.

For this audit, the MNR was concerned regarding the movement towards less intensive renewal treatments such as less mechanical site preparation and less planting (more areas for natural regeneration) than at the beginning of the 2001 FMP period. The concern related to the ability of the Forest to achieve the desired future forest condition as identified by strategic modeling. Although past renewal strategies proved largely successful, changes to these strategies during the 2001-2006 period may not be so. Given the substantial surplus in the Forest Renewal Trust account, there is money available for more intensive treatments (if required), thus an analysis of treatment effectiveness by SGR is warranted. The 1996-2001 RPFO (recently written in preparation for the 2006 FMP and knowing the changes in strategy) provided little insight regarding the success of specific silviculture treatments, the accuracy of predictions for future forest units or the year of expected successful regeneration after treatments have been done. It is anticipated that a more thorough analysis of silviculture treatments and natural regeneration prescriptions' effectiveness will be prepared during the upcoming Year Ten Annual Report, due November, 2006. In anticipation of this report (required by the 2004 Forest Management Planning Manual), the audit team made the following recommendation:

Recommendation 9

The Company should evaluate and report on the effectiveness of natural regeneration prescriptions made over the 1996-2001 period.

The depletion data that will be used for the 2005-06 and Year Ten Annual Reports were being prepared during spring, 2006, however were incomplete for the period 2005-06 since the harvest maps had not been prepared. The harvest data for 2005-06 were being inputted into the Company GIS system during July when the audit team was in the Company office during the field audit. Thus the data for the Trend Analysis Report were estimated.

Most but not all planned road construction was completed. The variance was because fewer roads were required for the reduced harvest. Discussions of proposed road locations and construction were carried out with affected tourism operators and concerned public regarding limiting new access to fisheries lakes.

A list of amendments was included and discussed appropriately. Forest management conclusions and recommendations were made and included in the preparation of the 2006 FMP. An overall summary was prepared in the 1996-2001 RPFO and was reviewed by the planning team and the LCC. The audit team concurred with the RPFO conclusions on forest sustainability and achievement of management objectives, despite lower levels of harvest and renewal than planned. Although targets for forest and renewal levels were not achieved, reasons for this were adequately explained. The Company and MNR implemented recommendations and suggestions in the 1996-2001 RPFO.

3.7 ACHIEVEMENT OF MANAGEMENT OBJECTIVES AND FOREST SUSTAINABILITY

Audit Principle

Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.

One assessment on the achievement of forest sustainability could be based on a consideration of the effect of forest management activities on objectives for forest diversity, social and economic matters, forest cover, and silviculture. Another assessment could be based on the requirements of the FMPM. This manual describes six criteria for sustainability, arising from the sustainability principles in the CFSA.

To develop a determination of the sustainability of the Black River Forest, the audit team reviewed many documents, including the following: the 1996-2001 Forest Management Plan[32], the 2001-06 FMP, the 2006-11 FMP, Annual Reports, the 1996-2001 RPFO, and the Comparison and Trend Analysis of Planned versus Actual Forest Operations Report (Trend Analysis Report). Extensive field observations and interviews by the audit team also contributed relevant information, augmenting the document review. The following is the audit team's analysis of the Trend Analysis Report found in Appendix A to this report and our opinion regarding sustainability.

3.7.1 Achievement of Management Objectives

The level of achievement of forest management objectives was a key factor in assessing forest sustainability. Objectives were developed for four main areas as required by the FMPM :

- Forest diversity.
- Social and economic matters (including timber harvest levels).
- Provision of forest cover for values dependent on forest cover.
- Silviculture.

The audit team reviewed the achievement of objectives from both the 1996-2001 FMP and the 2001-2006 FMP using data from the RPFO and the Trend Analysis Report.

Forest diversity is a long-term forest objective that will take many plan periods to achieve. The Company and the planning team invested considerable effort in the analysis of historic local forest inventory data in order to establish benchmarks of the natural or historic forest condition. This work formed the basis for establishing the desired future forest condition for the Black River Forest for both the 2001 and 2006 FMP. In the short-term, achievement of forest diversity was accomplished primarily through development of ecologically based FU classifications and strategic modeling.

[32] Also called a "phased in" forest management plan, based on Timber Management Planning Manual requirements.

There was a significant improvement in the achievement of the social and economic objective during 2001-05 as the Company reached the harvest plan level. Markets improved for the principal commercial species and forest products. These better conditions led not only to more timber delivery, but also additional timber volumes of hard-to-market poplar and birch compared to the previous 1996 FMP period.

Planning for the provision of forest cover for values dependent upon this cover was achieved. Planning used appropriate environmental guidelines. As noted previously, values were being identified by the MNR, and where additional values were discovered in the field, they were protected. Improvements were seen between the 2001 and 2006 plan regarding values collection. Nevertheless, more work needed to be done in this regard (see Section 3.3.5). The audit team is satisfied that overall, the Company and MNR were aware of environmental features. Plans and operations minimized negative impacts on them. Tables 9 and 10 illustrate the objectives and their attainment for the 1996 FMP and 2001 FMP.

TABLE 9: COMPARISON OF OBJECTIVES AND POTENTIAL FOR ACHIEVEMENT FOR THE 1996-2001 FMP

Objective	Planned vs. Actual Achievement*	Audit Team Comment
1. Timber management activities will be based on sustaining forest ecosystems and conserving forest biodiversity on the Black River Forest.	No measurable targets	This objective was achieved through strategic modeling and planning using ecologically based forest units.
2. Timber management activities will produce a continuous and affordable supply of conifer sawlogs to help meet the short and long term sawlog requirements of the Great West Timber Limited sawmill in Thunder Bay, to contribute to the regional supply of pulpwood and aspen veneer logs and to promote socio-economic values.	Harvest Area (ha) Planned 8,791; Actual 5,091 (58%) Total Volume (m3) Planned 768,914; Actual 430,180 (56%) GWT Sawlogs (m3) Planned 262,779; Actual 59,346 (22%) Aspen Veneer (m3) Planned 0; Actual 20,038 Number of Mills supplied Planned 4; Actual 9	This objective had been partially achieved, but was limited by poor markets for hardwood species, difficult terrain, and impact of the spruce budworm outbreak. The Company sawmill did not experience supply problems during this period as they had a number of other sources of wood supply. While the forest did not provide wood at planned levels, it did supply what the local markets would take. Under achievement of this objective in the short-term will not degrade the ability of this forest to meet this objective in the future.
3. Timber management practices will help provide the types and distribution of forest cover, consistent with the requirements of sustainability, which are needed to provide for other forest values which are dependent on that cover.	No measurable targets	This objective had been achieved through the application of appropriate environmental guidelines to protect values, communication with affected resource users, and improved water crossing techniques.
4. Silvicultural operations will be planned and implemented so as to provide for prompt treatment of cutover areas through a combination of artificial and natural treatments and appropriate levels and types of tending and protection treatments.	Renewal Area (ha) Planned 6,338 Actual 4,900 (96% of actual harvest, includes both natural and assisted renewal) Site Preparation Area (ha) Planned 4,423; Actual 2,610 (59%) (Does not include prescribed burn) Tending Area (ha) Planned 3,991; Actual 2,294 (57%)	This objective had been materially achieved as the levels of renewal were closely in line with the levels of harvest and there were no extensive areas of backlog that required treatment. The Company monitored success of assisted renewal treatments and where failures occurred, additional treatments were conducted, such as fill planting. Most areas prescribed for natural renewal were monitored from three to usually five years after depletion; lowland SB1 depleted units were monitored from five to seven years later. Where problems existed, treatments were instigated. Although natural regeneration success was evident on most blocks, the appropriateness of natural regeneration prescriptions should be evaluated. See Recommendation 8 in section 3.6.3

*Planned and actual figures have been taken from the 1996 RPFO except where noted.

Silviculture involved renewing harvested stands using the appropriate silviculture guides, local knowledge and site conditions. It was evident from the data reviewed and field observations that overall, harvested areas were being successfully regenerated. However, with the changes to FU classification over the last three plan periods, it was difficult to determine how successful the silviculture program was at achieving the targeted future forest condition. At this point, the audit team can say that the forest was being regenerated, both naturally and artificially, leading to a variety of hardwood, mixedwood and softwood stands. The overview flight gave the team a broad view of the artificially and naturally regenerated areas of the Forest and the field review showed successful silviculture treatments. However, the team suggests/recommends further analysis of natural regeneration prescriptions (See sections 3.6.1, Suggestion 13 and 3.6.3, Recommendation 9).

TABLE 10: COMPARISON OF OBJECTIVES AND POTENTIAL FOR ACHIEVEMENT FOR THE 2001-2006 FMP

Objective	Planned vs Actual Achievement (first four years of 2001 FMP)*	Audit Team Comment
1. Forest Diversity To provide a forest ecosystem that over time will emulate, to the extent possible, a natural, fire-driven boreal forest ecosystem at both a stand and landscape level.	No measurable targets	This objective has only been partially achieved, as it is long-term and will require a number of planning terms to fully achieve.
1.1 To produce a forest that has a more natural age class structure.	See Section 2.3.3.2 Targets (2001-2006 FMP) for comparison of the historical and modeled structure with the targets that were set.	This objective was achieved to the extent possible during the period. Targets for FU and age class structure were developed from a study on historical data for the area. These targets were used as inputs for strategic modeling.
1.2 To provide a range of forest units within the bounds of natural variation.	See table FMP-13 (2001-2006 FMP) for projected achievement.	This objective was achieved to the extent possible during the period. Allocation totals by FU are not materially different from AHA derived from SFMM. Input values for strategic modeling were established to limit movement of area between existing FU's.
1.3 To emulate natural disturbance patterns at a stand and landscape level through forest management activities.	Planned harvest blocks moved the distribution of disturbance sizes towards the distribution of natural disturbances for the area.	This objective was achieved. Planned harvest blocks were appropriately designed to provide a distribution of disturbance sizes and residual patches/peninsulas similar to natural disturbance patterns for the forest. As a side note, a strategy to use prescribed fire for cutover slash was identified for this forest diversity objective. However, the silviculture objective did not mention prescribed fire, nor was any prescribed fire forecast for this plan shown in FMP-25. The audit team found this strategy superfluous; however no suggestion is given since the 2006 plan addresses this issue in a better manner.
2. Social and Economic Matters To enhance the social, economic, recreational and cultural benefits historically derived from the forest.	No measurable targets	This objective was achieved. Strategic modeling showed a sustainable, consistent supply of wood volume available for harvest. The company has also greatly improved species utilization and harvest of hard to operate areas that would previously have been bypassed.
2.1 To provide a continuous supply of timber to the forest industry.	Harvest Area (ha) Planned 8,000 Actual 7,056 (88%) Harvest Volume (m3) Planned 908,035 Actual 750,300 (83%)	Achieved during the term; 83% of plan volume was delivered. Future deliveries appeared feasible from modeling. Markets for cedar and larch were discovered and birch utilization had increased from previous levels. Direct consultation with Pic River Development Corporation occurred regarding selection of stands for their harvest.

TABLE 10: COMPARISON OF OBJECTIVES AND POTENTIAL FOR ACHIEVEMENT FOR THE 2001-2006 FMP

Objective	Planned vs Actual Achievement (first four years of 2001 FMP)*	Audit Team Comment
2.2 To minimize the impact of forest management activities on the remote tourism industry.	No measurable targets. See discussion on remote tourism in Section 3.3.4 and 3.3.5	This objective was achieved to the extent possible during the term. The Company had taken the remote tourism operators' wishes into account, to the extent possible, in planning for roads and harvest timing. Remote tourism lakes were protected through road planning and signage where necessary. Consultation occurred with stakeholders and the LCC regarding remote tourism requirements.
2.3 To provide forest access for road-based recreationists, commercial road-based tourism and other commercial users.	Planned Road Maintenance (km) Primary 161.6 Secondary 38.2	This objective was achieved. Road planning took users' wishes into account, where possible and ongoing contact had been maintained with trappers and the LCC. The Company worked with trappers for beaver control. Maps showing roads were available to the public and commercial users, on request. Access road restrictions have been employed in order to protect remote tourism interests (see further comment under objective 2.4).
2.4 To facilitate the social (including cultural and spiritual values) and economic benefits available to local communities.	Access Road Restrictions on existing roads to protect remote tourism (km) Primary 73.5 km Secondary 13.1 km	This objective was achieved. The MNR met with the two local First Nation communities to identify values. MNR financed a native feast to attract band members to attend planning and values identification sessions. Firewood was available from the forest. A local resident had a cedar mill that had been cutting the minor amounts of cedar harvested. Most of the employees of the principal logging contractor were local and efforts to include first nations members in silviculture and stand maintenance activities had been made. Access road restrictions to protect remote tourism were carried over from the previous plan and incorporated the results of a related issue resolution process. Silviculture operations included First Nation workers.
3. Forest Cover To provide forest cover for those values that are dependent on forest cover.	No measurable targets	This objective was achieved through modeling.
3.1 To provide wildlife habitat at a stand and landscape level.	There were habitat modeling targets in the FMP for wildlife species.	This objective was achieved. Modelling targets were met for nearly all species, except marten. Appropriate guidelines were used to develop suitable AOC prescriptions at the stand level for wildlife habitat requirements and for the protection of water quality and fish habitat. At the landscape level, a range of disturbance sizes was created in keeping with emulation of natural disturbances. Received input from local citizens and the LCC about wildlife values.
3.2 To provide long-term contiguous forest as suitable habitat for marten.	The target for capable marten habitat was 10%	This objective was achieved to the extent possible. The best that could be done for marten habitat was to provide core areas accounting for 7% of the land base, because of the limited availability of suitable older forest. The 2006 FMP showed 10% habitat.
3.3 To provide water quality and fish habitat within watercourses affected by forest management activities.	No measurable targets	This objective was achieved. Application of the appropriate guidelines was made (some minor exceptions noted) to protect fish habitat. Reviewing compliance records indicated a high degree of compliance around water bodies. Planning for roads had taken water-crossing minimization into consideration.

TABLE 10: COMPARISON OF OBJECTIVES AND POTENTIAL FOR ACHIEVEMENT FOR THE 2001-2006 FMP

Objective	Planned vs Actual Achievement (first four years of 2001 FMP)*	Audit Team Comment
4. Silviculture To economically employ the most current silviculture technology available while recognizing the requirement to "emulate" natural disturbance patterns.	Total Renewal (ha) Planned 7,793 Actual 7,840 (111% of harvest area.) *This figure is from the July, 2006 Trend Analysis Report and was based on information available at that time; actual area that was reported in November, 2006 were 7,460 ha. See table 3, Section 2.1 for actual areas.*) Natural Regeneration (ha) Planned 4,533; Actual 6,500 Artificial Regeneration (ha) Planned 3,260; Actual 1,340 Site Preparation (ha) Planned 3,261; Actual 2,532 Tending (ha) Planned 3,254; Actual 1,981	This objective was achieved as regeneration levels are in keeping with harvest area. The Company monitored success of assisted renewal treatments and where failures occurred, steps were taken, such as fill planting. Most areas prescribed for natural renewal were monitored from three to usually five years after depletion. Where problems existed, treatments were instigated. The audit of the FTG survey performed during the audit period showed high success rates for both natural and assisted regeneration. Natural regeneration of the SB1 FU accounts for 31% of the overall renewal forecast. As noted earlier, this forest unit is becoming regenerated (mostly naturally) on most sites. Recommendation 9 was made for evaluating the effectiveness of natural silviculture prescriptions in achieving the desired future forest condition. Suggestion 13 was made to determine if there is a regeneration problem on lowland black spruce sites. These recommendations and suggestions do not imply there is a problem, just that there should be better monitoring and evaluation. See Sections 3.6.1 and 3.6.3. On-site checking of planting success and future vegetative competition determined the need for tending. A Company decision to reduce mechanical site preparation on some sites did not appear to preclude future regeneration success. Site specific decisions based on the best current information available were being carried out.

*Planned and actual figures have been taken from the Trend Analysis Report (Appendix A).

3.7.2 Review of RPFO Assessment of Sustainability

An assessment of forest sustainability was prepared and included in the 1996-2001 RPFO. The information presented in the RPFO materially complied with requirements with an exception noted around analysis of regeneration success (Section 3.6.3).

The CFSA describes sustainability as long term Crown forest health, which is "the condition of a forest ecosystem that sustains the ecosystems' complexity while providing for the needs of the people of Ontario". In order to measure sustainability, a series of indicators relating to the condition of the forest ecosystem and its complexity must be developed. Another set of indicators must be developed to provide for social and economic needs. The indicators required by the FMPM have been developed for the Black River Forest and are shown in the 2001 plan and expanded on in the 2006 FMP.

The CFSA came into effect April 1, 1994. The 2001 FMP and operations arising from this was the first complete period on which some criteria were measured to assess sustainability Thus, very little time elapsed that would enable a confident determination of whether sustainability was achieved based on the tables available for the RPFO.

The 1996-2001 RPFO was prepared under the phase-in requirements of the 1996 FMPM. The phase-in limited the completion of the report to specific tables and only 'to the extent possible' based on available information. Significant changes in FU classification between the

1991-96 TMP, 1996-2001 FMP, and the two later plans also made identification and evaluation of trends problematic. While the RPFO statement was vague, the audit team concurred with the sustainability conclusion because it was supported by Company/MNR records and field evidence that were reviewed/collected during the audit. Records showed that renewal was keeping pace with harvest and the field inspections indicated that natural renewal and treatments were mostly successful.

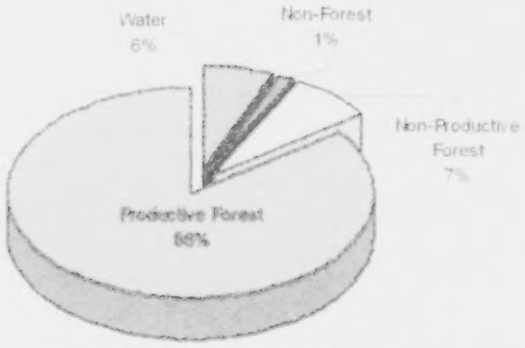
The RPFO did not include any statement of silvicultural effectiveness by forest unit, working group, and silvicultural treatment package. Recommendation 9 addresses this in Section 3.6.3. All of the proposed silvicultural treatment packages conformed to the recommendations in the silvicultural guides; therefore, there were no treatment exceptions.

3.7.3 Review of the Comparison and Trend Analysis of Planned versus Actual Forest Operations

The Trend Analysis Report was prepared by the Company in accordance with the audit protocol and was consistent with the field and office findings of the audit. The report provided comment on and analysis of planned and actual operations on the Forest between 1991 and 2006. The trends identified in the report included a significant improvement in wood utilization, new road construction practices made hard-to-operate areas accessible, there was less conifer and more hardwood forest unit area, renewal efforts were keeping pace with harvest levels, and free-to-grow assessments indicated the overall successful renewal of the Forest.

3.7.3.1 Description of Forest Condition

Since 1991, the area of productive forest did not materially change and was recorded as 212,122 ha by 2006 (Figures 9 and 10). A reduction of 3% (7,172 ha) from 1991 to present was the result of additional protected areas created through Ontario's Living Legacy. An increase of about 8% in productive forest stands resulted from a significant reduction in barren and scattered (B&S) stands. A new inventory and FTG surveys resulted in the reclassification of most of the B&S area to young stands. There was a slight increase in the area of non-productive forest that seemed to be the result of the new inventory.



Source: 2001-2006 FMP

FIGURE 9: DISTRIBUTION OF AREA UNDER MANAGEMENT

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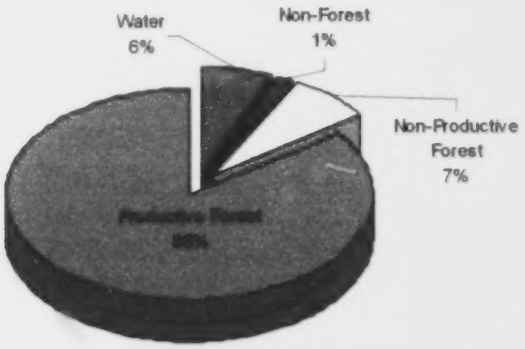

Source: 2001-2006 FMP

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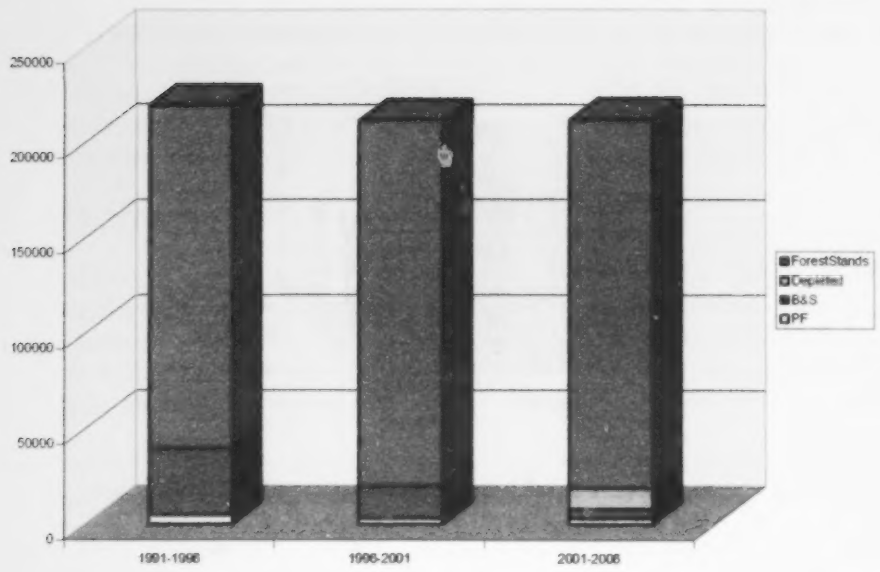
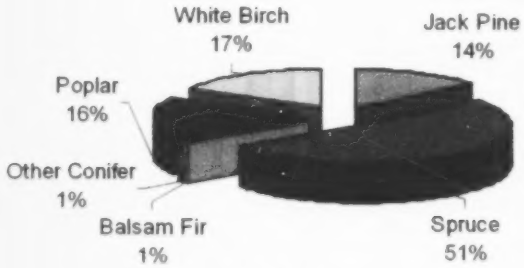


FIGURE 10: BREAKDOWN OF PRODUCTIVE FOREST AREA DURING 3 PLANNING TERMS (HA)

The most common forest units were dominated by black spruce, jack pine, poplar and white birch (Figure 11). There were very small areas of cedar and larch. Working group areas moved toward the desired future forest condition that was developed through Company analysis of historical records. Of particular note was a significant reduction in the area of Balsam Fir that was directly the result of a spruce budworm outbreak during the 1980's. The areas lost to the Balsam Fir working group mostly went to Spruce and Poplar and resulted in increases of 9% and 5% respectively.



Source: 2001-2006 FMP

FIGURE 11: WORKING GROUP PROPORTION OF PRODUCTIVE FOREST

Forest unit changes were very difficult to analyze due to complete changes in classification systems. Moving forward, this should not be an issue as regional standard FUs were used in both the 2001-2006 and 2006-2011 FMPs. However, one can look at the changes for conifer and hardwood groupings of FU's and see that there was a trend that saw a shift from conifer to hardwood forest units (Figure 12). The spruce budworm outbreak resulted in severe

mortality of balsam fir and white spruce. The new inventory produced for the 1996 FMP reflected this reduction in the conifer component in species composition on the forest.

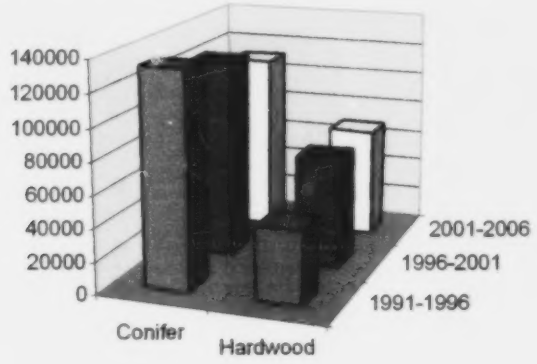


FIGURE 12: FOREST UNIT GROUPINGS (HA) BY FMP TERM

Changes in FU classification also made FU-level comparisons of age class very difficult to do. Looking at the total age class structure of this forest, it did not display the typical age class skew towards over-maturity that is prevalent throughout northern Ontario. There was a good distribution in age classes after the inventory update; the FTG assessments were included in the 1-20 year age class (Figure 13).

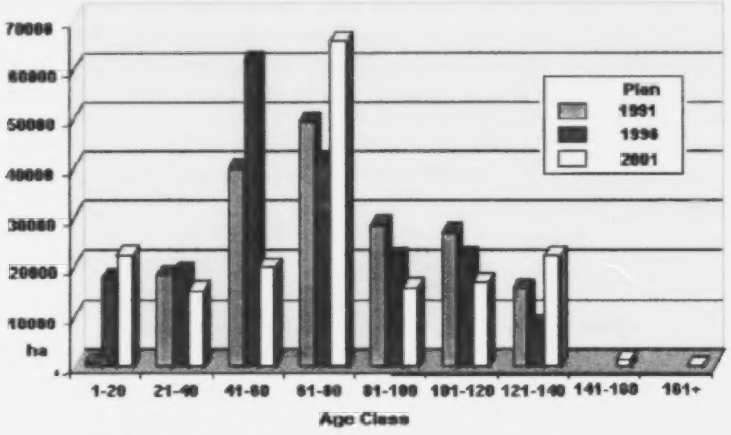


FIGURE 13: CHANGES IN THE AGE CLASS DISTRIBUTION OVER TIME BY FMP PERIOD

3.7.3.2 Achievement of Planned Area and Volume

The achievement of planned area and volumes improved markedly since 1991. A combination of poor markets for some species and products, excessive areas being bypassed as inoperable, and poor volume estimates contributed to achievements of only 36% for volume and

48% for area (actual versus planned) during 1991-1996. Opening and expanding markets plus more realistic yield forecasts improved the actual to planned to 56% for volume and 58% for area during 1996-2001. Strong markets and new road construction strategies to access hard to operate areas achieved a remarkable 83% for volume and 88% for area during 2001-2006, recognizing that records for 2005-2006 are incomplete at this time. Less volume logged in PO1 and BW1 contributed the most to the shortfall, as these species were hardest to market.

3.7.3.3 Utilization

The Company improved utilization of nearly all species from the 1996 plan to the 2001 plan period. Significantly, marketing of poplar and birch rose from the Black River Forest over the 2001 plan period. Actual utilization of poplar reached 75% of that planned. Nevertheless, species such as cedar, larch, defective birch, and small birch were not completely utilized principally because of the following reasons:

- Birch- some of the larger and better quality birch was being utilized, depending on its grade and the market at the time. The remaining clumps and single trees left standing were mostly below merchantable standards. The larger trees left were for the most part defective and/or were left to meet snag guidelines, along with other species left standing for this purpose. The audit team concluded that birch utilization met the scaling manual guidelines in all material respects.
- Cedar- this species was very defective and stands had low volumes. Although there was a marginal increase in utilization from the 1996 plan period to the 2001 period, little harvesting was done. There was local interest in cutting cedar, but factors such as the small scale of the mill and the costs of getting it to this market (including Crown dues and its low quality) sometimes prohibited its utilization. MNR and the Company promoted cedar use.[33]
- Larch- very minor amounts of larch were accepted at the Dubreuilville sawmill. This mill had limited market acceptance for larch lumber and too much could not be included in their output product mix. Larch was left standing wherever possible and was used to meet snag guidelines. Volumes found on the forest were very low.

Overall, the audit team concluded that utilization of the forest resource met requirements and was effective.

3.7.3.4 Achievement of Planned Renewal and Maintenance

Overall levels of planned regeneration were consistently being achieved. Tending was lower than forecast at about 40% due partly to:

- The forecast of gross area and the reporting of net area.
- A Company strategy to reduce tending if not required.

[33] Discussion on these species in this report is made to address a few comments received during the audit public review stage.

The lower tending levels did not seem to be an incorrect strategy, especially in areas prescribed for natural. On both treated and natural areas, tending was only used after an on-site inspection, and these indicated that tending was sometimes not necessary. Where it was necessary, it was carried out. The audit team saw reasonable survival and growth in planted areas that were untended. Areas left for natural renewal during the 1991 plan period were mostly untended. Since the free-to-grow survey conducted during this period showed significant free-to-grow areas, the audit team concluded that lack of tending did not significantly affect regeneration success. Recommendation 9 in Section 3.6.3 was made for better analysis of success of natural renewal on those areas that were not free-to-grow.

While the overall renewal achievements were reasonably consistent with total planned levels (combination of natural and artificial planned area), there was considerable variation among forecasted levels for artificial regeneration and site preparation. Bracke site preparation was not carried out after 2003 and was replaced by either planting un-site prepared areas or by chemical site preparation that the audit field review found effective (see discussion in Section 3.4). Artificial regeneration fell short of planned and natural regeneration increased by 43% over the current period. See Section 3.4.3 and 3.6 of this audit report concerning increased use of natural regeneration and its success.

3.7.3.5 Harvested Area Successfully Regenerated

The success of renewal and maintenance efforts was a valuable measure of how well the forest was being managed. Table 7 from the Trend Analysis Report provided a summary of the status of area that was harvested during 1991-1996. This table showed that 80% of the area had been surveyed and that 73% of the surveyed area was FTG (Figure 14). The unsurveyed areas were comprised of areas that have been recently treated or were burned in a 1996 wildfire. The audit team felt that the levels of success at this stage in stand development were acceptable. The missed and unsuccessful areas are planned to be included in assessments during the 2006 FMP term. See Section 3.6 for discussion around better survey methods in the SB1 Forest Unit.

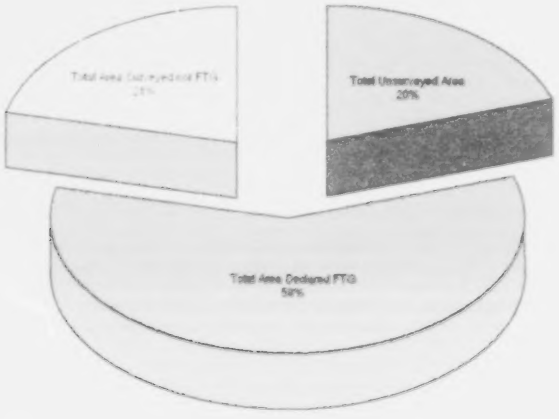


FIGURE 14: BREAKDOWN OF 1991-1996 HARVEST AREAS

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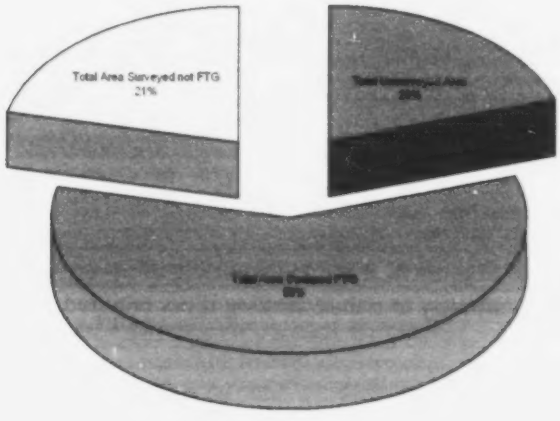
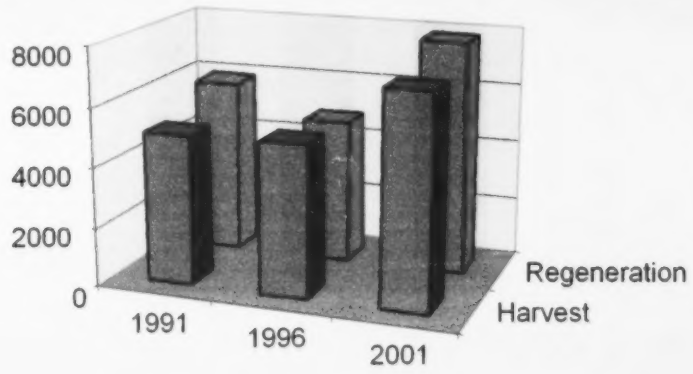


FIGURE 14: BREAKDOWN OF 1991-1996 HARVEST AREAS

3.7.3.6 *Harvest versus Regeneration*

An important target for forest sustainability is the regeneration of harvested areas. In the Black River Forest, the Company's renewal and maintenance efforts were keeping pace with harvest levels and there was not any backlog of area that required treatment (Figure 15).



Source: Trend Analysis

FIGURE 15: HARVEST AREA (HECTARES) VERSUS REGENERATION AREA

3.7.3.7 *Indicators*

The 1996-2001 Report of Past Forest Operations was prepared under the requirements of the 1996 Forest Management Planning Manual. The report's author stated that the 1996-2001 FMP was written prior to the planning manual coming into effect and that only two of the measurable indicators (total productive crown forest and percentage of available harvest area utilized) had enough information on which the audit team could comment.

The total productive Crown forest area is presented below in Figure 16 for five planning periods. While the harvest areas have varied +/- 10%, the variance can be attributed to changes in ownership (mining patents) and additions to protected areas. The last two planning terms show that changes were minimal and that the total productive Crown forest was stable.

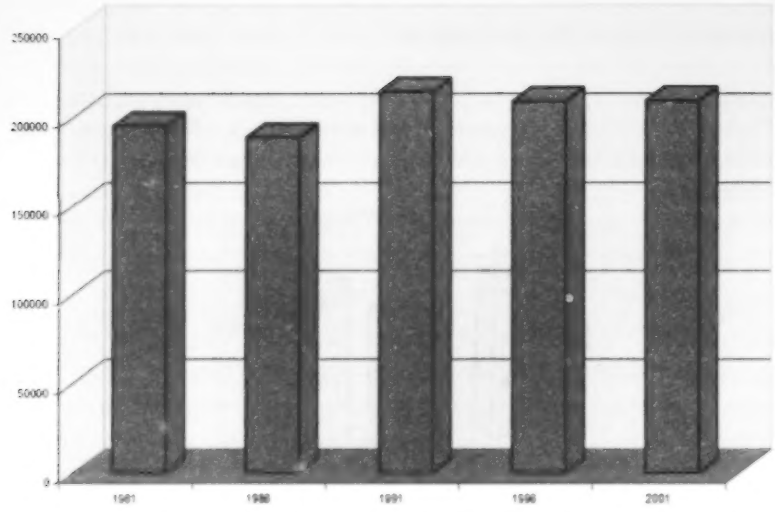


FIGURE 16: TOTAL PRODUCTIVE CROWN FOREST AREA (HECTARES) BY PLANNING TERM

The percentage of available harvest area that was utilized was shown for two planning terms and indicated a trend towards higher utilization, although the reported harvest levels to 2001 were below 50%. While not included in the RPFO, the Trend Analysis Report provided partial data for 2001-2006 that indicated that higher utilization would continue and that utilization might improve to over 80%. This indicator moved towards plan objectives for wood supply and economic contributions.

The 1996-2001 RPFO did not show efforts that were made to involve nearby First Nations communities in participating in the planning process and operations on the Forest. It should be noted that the District complied completely with the MNR policy regarding First Nations participation and Condition 34. It was clear that FN were involved with planning, were consulted, and had opportunities for economic development in forest management. This discussion is not about the compliance with the Condition 34 directive; it is about the monitoring/analysing of it by the Company as a CFSA sustainability requirement. RPFO table 18 showed 100% (i.e. both communities) were involved in the "special native consultation option" during 2001-06, and 0% before that. However, there was no analysis of this participation (a criterion for sustainability) in the RPFO text. This RPFO was prepared under the 1996 FMPM, which described the content of Table 18 and analysis that should be done with it. While the RPFO table 18 complied, the analysis (or lack of it in the RPFO) did not.

Reporting requirements have changed since then and now the responsibility for all reporting on MNR's work with First Nations regarding Condition 34 of the EA is completely with the MNR[34]. Nevertheless, the 2004 FMPM requires a Year Ten Annual Report, to be prepared by the Company, and the contents of this include AR 20: list of indicators and their achievement (Page E 60) and discussion around these indicators.

[34] MNR. July, 2006. Annual Report Preparation and Review Protocol. 52 pp.

Suggestion 15. The MNR should provide information on efforts that have been made to involve nearby First Nations in planning and operations when the Company prepares the Year Ten Annual Report.

The information presented in the Trend Analysis Report was consistent with the field and office findings of the audit. The trends identified from the Trend Analysis Report were positive and reflected, for example, general improvements and increases in forecasting accuracy, utilization, harvest levels, and data collection. Volume forecasts became more realistic because of improved yield estimates, utilization and opportunities for marketing the timber. Renewal achievement kept relative pace with actual harvest levels.

3.7.4 Assessment of Forest Sustainability

Evaluating sustainability involves setting sustainability goals, gathering information, analysis of this information and reporting on it. During forest management planning and operations, the Company and MNR had been evaluating sustainability. They targeted the maintenance of forest ecosystem complexity during FMP planning for both the 2001 and 2006 plans and attempted to meet people's needs, both in planning and execution. The 2006 FMP described planning teamwork on modeling sustainability criteria. These criteria are *Biodiversity, Forest Condition and Ecosystem Productivity, Soil and Water Quality, Global Ecological Cycles, Multiple Benefits to Society,* and *Accepting Society's Responsibility for Sustainable Development. Global Ecological Cycles* are not relevant at the forest area, while the other five criteria are. However, while relevant, measuring number two-*Forest Condition and Ecosystem Productivity* and number three- *Soil and Water Quality* is difficult at the forest level.

The planning team for the 2006 FMP modeled *Biodiversity* using the following models:

- Landscape Ecological Analysis Package, which models spatial characteristics of landscape patterns.
- OWHAM, which models marten core areas.
- Natural Disturbance Pattern Emulation Tool, which models spatial measures of disturbance frequency by size class.

The planning team modeled *Multiple Benefits to Society* using SFMM for timber harvest scenarios, SEIM for socio-economic considerations, and the Regional Hydrological Simulation System for water production. It will take a number of planning cycles before significant analyses (using metrics) of sustainability trends can be done. Nevertheless, a start was made.

The audit team reviewed forest planning, operations, monitoring systems, opportunities for community involvement, overall effectiveness in forest management, planning and protection of the environment and organizational factors such as staff competency and training. We concluded that the MNR and the Company managed the forest to ensure sustainability as defined by the CFSA: long term ecosystem complexity while meeting people's needs. Both organizations worked towards a balance between maintaining timber production, jobs and industry, protected the environment and maintained or enhanced ecosystem complexity.

The requirements for forest management planning in Ontario had been evolving over the last two decades with significant changes in 1985, 1996, and 2004 that involved the production of new manuals. While adaptive management requires that changes be made from time-to-time, wholesale changes made trends over time very difficult to evaluate. This was particularly true concerning reporting requirements that kept changing for key elements on which analysis of trends and evaluation of objectives was based. The MNR might consider how changes to the FMPM could affect the meaningful evaluation of changes over time. Consistent guidance provided to forest managers may enable them to better deal with these transitions and to produce more useful comparisons.

The Trend Analysis Report is a valuable tool, but was a considerable extra burden for forest managers. The requirements for the Trend Analysis Report could better be incorporated into the FMPM reporting requirements rather than as a product produced solely for the audit. In addition, it is the audit team's understanding that timing might be adjusted to be a year or two later, to allow for annual reports to be produced.

Suggestion 16. The MNR should consider incorporating the Trend Analysis Report into the FMPM reporting requirements and amend the timing to improve availability for the Independent Forest Audit.

Progression toward the desired future forest condition was determined by comparing plan start and plan end values, where these were available. A positive trend that was measurable was that the total managed Crown forest available for timber production did not materially change (from 209,215 ha to 209,629 ha). However, comparison of plan start, plan end, and desired future forest condition using FU and age class distribution could not be done due to significant changes to FU classification from the 1991-96 to the 1996-2001 period.

Under the phase-in requirements of the 1996 FMPM, the table, RPFO-13 was not required (i.e. Comparison of Projected, Actual, and Desired Future Forest Condition for the Managed Crown Forest Area Available for Timber Production). As a result, the 1996-2001 RPFO could not discuss whether the current forest condition had progressed toward the desired future forest condition. This analysis was possible using the last four years' data and the strategic analysis done for the 2006 FMP did show that there was movement toward the desired future forest condition. The audit team agreed with the analysis presented.

Table 11 gives the audit teams' conclusions and notes for five of the six FMPM criteria for sustainability. These are: *Biodiversity, Forest Condition and Ecological Productivity, Soil and Water Quality, Multiple Benefits to Society, and Accepting Society's Responsibility for Sustainable Development.*

TABLE 11: AUDIT TEAM OPINION ON FIVE SUSTAINABLE FOREST MANAGEMENT CRITERIA DURING THE AUDIT PERIOD

Criteria for Sustainability	Opinion Whether Met	Positive Notes	Needs Improvement in:
Biodiversity	Yes	SFMM modeling showed movement towards future forest condition. Modeling for landscape patterns, marten core areas, and spatial measures of disturbance gave appropriate baseline information. Logged sites had snag retention and coarse woody debris.	Simplifying analyses for those species that have core ranges on the Forest.
Forest Condition and Ecological Productivity	Significantly achieved	Reforestation achieved, forested land base was being preserved, FRI was updated, surveys were conducted, and logging was low impact.	Measurement and analysis of parts of SB1 regenerating Forest Unit. Evaluation of renewal effectiveness of parts of natural regenerating areas. Waiting for frozen conditions before starting skidding. Evaluating older Bracke scarified areas.
Soil and Water Quality	Significantly achieved	Minimizing roads, winter access, crossing removal, and active maintenance program.	Minimizing sedimentation into streams on older crossings. Reducing slash accumulations. Identifying critical fish habitat.
Multiple Benefits to Society	Yes	Even-flow projected harvest over time, planned harvest increasing to date compared to planned, increased utilization of poplar and birch, other forest user's needs taken into account during planning and operations, and modeling of water flows.	Increased level of Values collection. More accurate stream identification.
Accepting Society's Responsibility for Sustainable Development	Yes	One First Nation's harvest allotment was substantially harvested. Good MNR communication with First Nations. LCC is effective.	Clarifying roles and responsibilities of the LCC. Determining and providing more realistic financial requirements of the LCC. Reporting on First Nations' involvement in planning.

In summary, the forest condition was moving towards the desired future forest condition, based on SFMM modeling and the limited data available during the 2001-2005 period. Strategic modeling predicted a stable long-term wood supply and actual harvesting of available area and volumes were nearly at target levels. Wildlife habitat and other values were considered and protected and harvested areas were being successfully regenerated. The MNR and the Company demonstrated a high stewardship ethic that led to effective planning and operations.

The audit team examined considerable evidence and found there were no material biological, physical or environmental threats to sustainability. Factors such as effective planning, harvest levels, protection of other resources and regeneration success supported the finding of sustainability. The audit team's conclusion is that during the audit period and based on the criteria discussed above, the Black River Forest was managed sustainably to provide for people's needs while ensuring long-term ecosystem complexity.

3.8 CONTRACTUAL OBLIGATIONS FOR THE SFL

Audit Principle

The licensee must comply with the specific requirements of the SFL.

3.8.1 Background

The original SFL 542002 was signed by the Minister of Natural Resources (Minister) on March 21, 1996 and covered the period April 1, 1996-March 31, 2016 (see Table 1 in Section 2). Since then there were changes to this SFL, culminating in an extension to the period April 1, 2001-March 31, 2021. The Minister signed the new SFL document on March 31, 2006 that imposed additional requirements during 2005. Thus, there was an overlap in a few of the requirements of the licences. One of the more important ones was dropping of the Marathon Pulp wood supply commitment and adding a commitment for Levesque Plywood Limited's Hearst facility (Levesque), along with a requirement for a memorandum of agreement to be entered into between the Company and Levesque.

The audit team reviewed the contractual obligations found in both licences. It found that the Company complied with the terms and conditions of the licences in all significant respects, with exceptions noted below.

3.8.2 Compliance with Specific Licence Obligations

The following sections refer to those sections found in the latest 2001-2021 SFL version, with the exceptions noted.

3.8.2.1 Section 2-Area, Term and Pricing

Charges to be paid to the MNR included annual area, Forest Renewal and Forestry Futures charges. The latter two were invoiced monthly. The majority of the prices to be paid for timber harvested (i.e. stumpage) were paid by the mill receiving the wood[35]. The Company had a tracking system for all charges and there was evidence that they had been paid for the most part throughout the audit period. The exception was that Forest Renewal, Forestry Futures and stumpage was not paid on time during the last year of the audit period and as of December, 2006 some of that money owing for the period 2005-06 was still in arrears. MNR and the Company completed negotiations during December, 2006 and a repayment schedule was in place for the outstanding amounts owed.

Recommendation 10

The Company should pay the outstanding Crown charges and stumpage as per the December, 2006 payment agreement.

[35] Typically mills have an agreement with the Crown to become "Agents of the Crown" for the purpose of remitting stumpage. Payment is expected within two months of the scale of the timber.

3.8.2.2 Section 3-Wood Supply Commitments and Overlapping Licensees

Annual timber volume commitments included Kimberly Clark's pulp mill (Neenah Paper during the audit period) in Terrace Bay (67% of all poplar to a maximum of 27,000 m^3), Marathon Pulp's pulp mill in Marathon (32 % of poplar to a maximum of 13,000 m^3), Dubreuil Forest Products sawmill at Dubreuilville (coniferous sawlogs surplus to the Company's requirements), Levesque Plywood Limited's Hearst Division (un-named amount), and Pic River Development Corporation (16,800 m^3).

All commitments had been honoured, with the exception noted below, based on their share of actual harvest and their requirements for the year. Levesque Plywood had wood deliveries of 308 m^3 to their Hearst facility and 13,081m^3 to their Nipigon facility. Audit interviews elicited positive statements regarding the commitment achievement. There were harvest shortfalls at times; however the holders were satisfied by the Company's attempt to meet its commitments. The volume shortfalls were adequately explained and justified.

Regarding Memoranda of Agreement (MOA), discussions occurred between the Company and Levesque and the Company and Neenah Paper. A MOA with Levesque was not entered into six months after the amendment to the licence as required by the SFL commitment #4. A MOA was not entered into with Neenah Paper; however this facility was sold to Buchanan Group (fall, 2006) and a MOA is now redundant.

Recommendation 11

The Company should continue negotiations with Levesque Plywood Limited and enter into a memorandum of agreement consistent with Supply Agreement #536233.

Pic River Development Corporation managed the overlapping licence issued to the Pic Heron Indian Band (Ojibways of Pic River First Nation is the name used in this report). PRDC harvested 23,000 m3 annually for the first four years of the audit period and a lesser amount during 2005-06, but still within the commitment.

3.8.2.3 Section 4-Manuals

The 2001 FMP was prepared and signed by an R.P.F. Compliance plans, annual work schedules and reports were prepared materially on time. There were an approved FMP, AWSs and permits in place before operations commenced.

Surveys and inventories were carried out as required. Free-to-grow surveys were conducted and submitted. The 1994 forest inventory was updated for the 2001 and 2006 FMPs.

The Company provided all information in the ARs to the MNR as required. The 2004 Annual Reports were in a revised format as required by the FIM. The format changed during 2003-04 and the new format complied with FIM requirements. A recommendation on timing of reports and a suggestion regarding correcting an error in the 2003-04 report was given (Section 3.6.2).

From a review of the ARs' compliance information and the results of the field audit, the audit team believes the Company effectively managed utilization of the majority of timber species. Utilization of poplar and birch improved since the previous plan period.

3.8.2.4 Section 5-Levels on Future Harvest Levels

This section was in effect during the 1996 SFL document, but was not executed by the Minister upon extending the licence to 2001-2021. Section 5 was repealed in the 2001 SFL document.

3.8.2.5 Section 6-Natural Disturbances and Salvage

During the audit period, there were a few minor natural disturbances such as fires and windthrow. Harvest of windthrown timber, where necessary, occurred as part of standard harvest operations. The principal contractors collected downed timber either during the main operations or as part of the subsequent clean-up process. The Company aerially surveyed areas periodically and during this process recorded the few significant areas of windthrow and other disturbances. No salvage operations relating to Section 6.0 of the SFL were conducted.

3.8.2.6 Section 7-Forest Protection

There were no materially damaging outbreaks of insects or diseases during the audit period. As noted previously in Section 3.4, pitch nodule moth was noted on two blocks; however this was minor in extent. The Company collected information on pests, such as pest species, extent, and severity of out break where appropriate during renewal and tending inspections.

3.8.2.7 Section 8-Compensation for Withdrawals

There were two areas withdrawn from the Black River Forest regarding Ontario's Living Legacy just before the current 2001 plan. Procedures for such withdrawals were adhered to. There were no Company structures, eligible silviculture work, or primary or secondary roads on these lands. Thus there was no need for compensation to the Company.

3.8.2.8 Section 9-Periodic Review of Licensees Performance

The requirements of the 1996 SFL document are used here; the 2001 SFL document refers to this audit, not the 2001 audit of the 1996-2001 period. There was an audit of the Black River Forest conducted during 2001, and the report was tabled in the Provincial Legislature during 2003. The action plan was approved in January, 2003 by the MNR. A status report was prepared during June, 2005 and MNR Forest Management Branch prepared the summary of the status report in March, 2006.

In the opinion of the audit team, many, but not all of the 2001 IFA recommendations had been dealt with (Table 12). Recommendation 5 in this report is directed to the Company to improve slash management.

TABLE 12: REVIEW OF THE 1996-2001 IFA RECOMMENDATIONS

Recommend-ation	Auditee	Content	Completed Yes, No, Partly
1	MNR	Allocate budget for timely values identification	P- although the actions in the plan were completed, the intent of the recommendation was only partly completed. See Recommendations in 3.3.5.
2	MNR	Meet with remote tourism operator to see if LCC processes can be modified to allow better participation	Y
3	MNR	Review Request for an Individual Environmental Assessment procedures with MoE	Y
4	MNR	Develop more effective means of values collection	P- although the actions in the plan were completed, the intent of the recommendation was partly completed.
5	MNR	Complete the Forest Management Planning Improvement Project	Y-Sept. 6, 2002
6	MNR	Share the MNR strategy for implementation of T&C 77 with local offices, forest industry and First Nations	Y (improvements could be made in sharing with First Nations)
7	Company	When developing targets for harvest and renewal, include more realistic operational constraints	Y
8	Company	Identify bypass back to 1993	P-begun, but not completed
9	Company	Resolve slash pile management issues	P- some areas piled and burnt, many areas not. See the recommendation in Section 3.4.2
10	Company	Identify a road access corridor into Swede Creek valley	Y (not shared with MNR)
11	Company	Eliminate backlog of free-to-grow surveys	Y

The two suggestions dealing with better definition of LCC role and training by MNR (#1) and consider succession planning by the Company (#2) were dealt with. The audit team noted that improved definition of LCC terms of reference (Suggestion 1 of this report) would be useful.

3.8.2.9 Section 10-Forest Renewal Trust

The Company paid all renewal charges to the Trustee of the Forest Renewal Trust up until 2005. This conclusion was based on the audit team's review of the Company's accounting system and inspection of accounts payable to the Renewal Trust. The audit team does not certify that these amounts were calculated correctly by the MNR. Recommendation 10 in Section 3.8.2.1 deals with repayment of amounts outstanding from the last year (2005-06).

Annual analyses were conducted by the Company to determine an appropriate level of renewal rates. The changed rate has been reflected in the following year's charges. The Company ensured that all eligible silviculture work was paid for in a manner that did not deplete the Forest Renewal Trust Account below the minimum balance shown in the SFL Appendix D. The Company maintained maps and records concerning eligible silviculture work. There was a system for coding allowable silviculture work within the accounting system.

3.8.2.10 Section 11-Subaccounts of Forest Renewal Trust

There were no subaccounts of the Forest Renewal Trust for this licence.

3.8.2.11 Section 12-Forest Renewal Charges and Minimum Balance

Forest Renewal Trust account has had minimum balance every year and was roughly double now compared to the beginning of the period. An analysis was conducted for the forecast of silviculture work, current requirements and future requirements of the trust account. The audit

team found the forecasted levels were reasonable. The audit showed that the level of silviculture investment while appearing to be low is likely appropriate, based on a strategic shift to more natural renewal and less mechanical site preparation. The audit team feels the levels of expenditure; given the change in renewal strategy was justified. This may not be the case in future. There may be more costs during the 2006-2011 period, as higher cost fill planting occurs and if Company monitoring programs indicate more assisted renewal treatments are required. See Recommendation 9 in Section 3.6.3.

3.8.2.12 Section 13-Record Keeping and Audit (Forest Renewal Trust)

Records were being kept (see above). The KPMG 2005 Specified Procedures Report for eligible silviculture work during 2004 showed that all renewal costs that were invoiced to the Forest Renewal Trust were appropriate (i.e. for those treatments which were allowable) and that the total costs did not exceed the allowable maximum. The audit team reviewed 45% of the year 2004-05 silviculture projects on the Forest and 100% of the slash pile fluffing project on the Cache Lake blocks to determine if there was field evidence that work had been carried out. The audit sample showed that all work had been completed as reported.

3.8.2.13 Section 14 and 15-Transfers and Withdrawal Effects on Forest Renewal Trust

There were no forest renewal charges paid with respect to areas withdrawn; these two sections were not executed during the audit period.

3.8.2.14 Section 16-Silvicultural Standards

Class A lands are pre-April 1, 1994 (pre-1994) harvested lands where no eligible silviculture work had been initiated by the MNR. Class B lands were harvested pre-1994 and planned for natural regeneration. Class C lands were harvested pre-1994 for which the Company was not required to meet the silviculture standards. Class D lands were harvested pre-1994 on which silviculture was initiated or was planned, and in addition, includes all lands harvested post-March 31, 2004. Category 1 lands included Class A and C. The Company and MNR had no responsibility for reforesting Category 1 lands. Category 2 lands included Class B and D.

Paper maps and records of Category 1 lands were available and had been digitized into the management record system. Many of these lands had been included in FTG surveys and found to be FTG. Category 2 lands were still in the process of being renewed, however the audit team notes that the pre-1994 depleted and not reforested area was reduced from approximately 5000 ha (mid '90's) to about 250 ha by 2006, which is commendable. Standards of the day in renewing the Category 2 lands were followed. Current renewal treatments were effective and FTG records showed that areas prescribed to natural renewal were regenerating appropriately. The audit team noted improvements in prescribing natural regeneration on some SB1 FU areas should be made and a suggestion was given to reassess these sites within three years.

3.8.2.15 Sections 17, 18 and 19-Termination of Forest Renewal Trust; Construction Liens; Herbicides

Forest Renewal Trust was not terminated; nor were there liens. There were no reasons to amend the Company's requirement to meet silvicultural standards as a result of herbicide restriction. These three sections were not executed during the audit period.

3.8.2.16 Section 20-Aboriginal Opportunities

The Company provided opportunity for aboriginals in silviculture work. The Ojibways of Pic River First Nation had an overlapping license on the Black River Forest and the Company worked with MNR to facilitate the harvest on this license. Logging was conducted through the Pic River Development Corporation, the Band's vehicle for logging and other economic development projects.

It was noted that one First Nation Community near the Forest had not participated in planning until 2003. Nevertheless, there was evidence of ongoing and repeated attempts of periodic MNR notification, both verbally and in writing in order to include this First Nation Community in planning. The Company worked with the MNR to include this group in the benefits of forest management planning and to improve opportunities for forest-based employment or business. The audit team concluded that although these two communities were not on the Forest and technically did not fall under T&C 77 and Condition 34 of the 2003 Declaration Order, that local aboriginals had commercial opportunities, such as silviculture contracting. See Section 3.2.3.

3.8.2.17 Section 21-Compliance Planning and Monitoring

The Company trained staff and was committed to the compliance program, including required planning, execution and reporting on forest management activities. There should be some improvement to monitoring (Recommendations 6, 7, 8 and 9 and Suggestions 10, 11, 12, 13, and 14). Non-compliances were mostly minor and the number tapered off during the audit period. The audit team found that the compliance program was adhered to in all material respects, with the exceptions noted above.

3.8.2.18 Section 22-Forestry Operations on Mining Claims

There were no Company forestry operations on active mining claims, however there were some on staked, inactive claims. MNR notified all claim holders annually. No responses were received. No silviculture was conducted on abandoned mining claims or activities (such as clearing for prospecting activities). Mining operators were responsible for cleaning up their own operations.

In summary, the Company complied with the terms and conditions of the Sustainable Forest Licence in all material respects. The MNR carried out their responsibilities with respect to the SFL requirements.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 AUDIT CONCLUSIONS

The Black River Forest was well managed both by the MNR and by the Company. Both carried out their responsibilities under the terms of the SFL. Exceptions to the generally good management are noted in the report; however these exceptions are not significant enough to alter this overall conclusion. The 2001 FMP audit, planning for the 2006 FMP, and the field review of 2001 plan implementation and operations indicated that management planning and operations materially met the requirements and that management activities were effective overall.

The Company and the MNR demonstrated a commitment to environmental awareness and a high standard of forest management. Both provided effective leadership in the planning and operations of this Forest.

The audit team is satisfied that the MNR and the Company complied in all significant respects with the applicable acts, government policies, FMPs and other requirements in effect during the 2001 FMP and for the planning of the 2006 FMP. MNR and Company forest management planning, operations, monitoring, and reporting were effectively conducted. The audit team believes that the MNR's and the Company's planning and operations on the Black River Forest during the audit period were being managed in a sustainable manner.

Recommendation 12

The audit team recommends that the Black River SFL #542002 be extended for a further five-year term.

4.2 RECOMMENDATIONS, SUGGESTIONS AND BEST PRACTICES

4.2.1 Recommendations

Audit Principle 2: Public Participation

1 The MNR should determine what the realistic financial requirements are for the effective working of the LCC and endeavor to provide the funding on a timely basis.

Audit Principle 3: Forest Management Planning Process

2 The MNR should allocate sufficient resources for the timely collection and delivery of values information.

3 The MNR should develop a cost-effective rapid assessment technique for determining thermal regime of waterbodies and watercourses and identifying critical fish habitat.

4 The Company and MNR should hold joint training with planners, compliance and operations staff regarding the identification and management of ephemeral, intermittent, and permanent streams.

Audit Principle 4: Plan Implementation

5 The Company should significantly increase their roadside slash piling and removal or burning program by the end of 2008 and should expand training and awareness of equipment operators in acceptable slash piling.

Audit Principle 6: Monitoring

6 The MNR should determine a realistic minimum number of inspections annually and meet this target.
7 The MNR and the Company should respond within the FIM designated time frame with changes to future Annual Reports, resubmissions, and approvals.
8 The Company should report the area of natural regeneration prescriptions annually; the MNR District should ensure that reporting is carried out; and Corporate MNR should improve training for both District and Company staff.
9 The Company should evaluate and report on the effectiveness of natural regeneration prescriptions made over the 1996-2001 period.

Audit Principle 8: Contractual Obligations

10 The Company should pay the outstanding Crown charges and stumpage as per the December, 2006 payment agreement.
11 The Company should continue negotiations with Levesque Plywood Limited and enter into a memorandum of agreement consistent with Supply Agreement #536233.

Licence Extension

12 The audit team recommends that the Black River SFL #542002 be extended for a further five-year term.

4.2.2 Suggestions

Audit Principle 2: Commitment

1 The MNR should clarify the roles and responsibilities of the LCC in the next terms of reference.

Audit Principle 3: Forest Management Planning Process

2 The MNR should address habitat modeling requirements of forest-dependent Partners in Flight priority bird species in future planning policy documents.
3 The Company should present and discuss the results of the ground assessment of access to the Swede Valley with the MNR.

Audit Principle 4: Plan Implementation

4 The Company should assess recently harvested black spruce leave strips within three years, to determine whether brush is taking over the site and that the natural regeneration prescription is still appropriate.
5 The Company should review the 1980's seeded Bracke scarified areas to determine if further tending is warranted.
6 The Company should increase efforts to reduce sedimentation going into streams.

Audit Principle 5: System Support

7 Both the MNR and the Company should improve communication between organizations, chiefly with respect to compliance.

8 The MNR should develop a more effective information management and communications strategy to avoid information loss during staff (especially biologist) turnover.
9 The MNR should sign the next terms of reference for the LCC.

Audit Principle 6: Monitoring

10 The Company and the MNR should conduct more joint site visits on a regularly planned basis.
11 The Company and the MNR should determine which agency is responsible for monitoring old culverts.
12 The MNR should develop consistent forest inventory stratification standards.
13 The Company and the MNR should collaborate on designing a FTG survey that will provide sufficient data to analyse if there is a regeneration problem on harvested SB1 lowland sites.
14 The Company should carry forward 3,261 ha of ground chemical site preparation to aerial and to update the figures to 1,064 ha ground and 1,296 ha aerial in the "actual to date" column in the next AR7 annual report and Year Ten Annual Report.

Audit Principle 7: Achievement of Management Objectives and Forest Sustainability

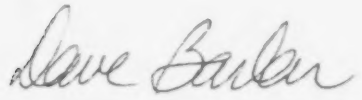
15 The MNR should provide information on efforts that have been made to involve nearby First Nations in planning and operations when the Company prepares the Year Ten Annual Report.
16 The MNR should consider incorporating the Trend Analysis Report into the FMPM reporting requirements and amend the timing to improve availability for the Independent Forest Audit.

4.2.3 Best Practices

Audit Principle 4: Plan Implementation

1 Tertiary roads were minimized on some blocks, which led to less productive land being taken out of the forest land base.

Signed on behalf of the audit team



David Barker, MSc. R.P.F., CEA (SFM)

APPENDIX A

COMPARISON AND TREND ANALYSIS OF PLANNED VS ACTUAL FOREST OPERATIONS REPORT

Comparison and Trend Analysis of Planned Versus Actual Forest Operations Report for the Black River Forest Licence Area

Prepared by:

Jeremy K. Jones, R.P.F.

Signature: [signature] Date: June 14/06

Introduction

The preparation of a comparison and trend analysis report is a requirement of the Independent Forest Audit Protocol for the purpose of the Black River Forest audit covering the five year period 2001-2006. The comparison and trend analysis report covers the Forest Management Plan (FMP) that was in place on March 31st of 2001 and the two previous Forest Management Planning periods.

Sustainable Forest License

The Black River Forest is managed by Great West Timber Limited under the terms and conditions of Sustainable Forest Licence (SFL) No. 542002, which was granted by the Minister of Natural Resources in April of 1996. This SFL is the successor of Forest Management Agreement (FMA) No. 500800 that was first issued on March 31st, 1982 and was renewed on May 12th, 1989 and again on January 13th, 1993. The SFL expires on the 31st day of March, 2021, but will be reviewed for a five-year extension in 2006.

The Black River Forest is located in the Wawa Administrative District of the Northeastern Region of the Ministry of Natural Resources. All forest management activities on the Black River Forest are coordinated through the Ministry's Designated Crown Representative located in the District's Area Office in Manitouwadge. The head office for Great West Timber Limited is located in Thunder Bay with a local office in Manitouwadge. The Company's timber management operations on the Black River Forest are planned and implemented by the Management Forester, located in the Manitouwadge office.

History of Forest Management Planning

The first management plan for the Black River Forest was written in 1951 and was followed by a second plan in 1957 that covered a twenty-one year period from April 1st, 1956 to March 31st, 1977. A Plan for the next management term was in preparation at the time of entering into the Forest Management Agreement for the Black River Forest and it was then re-written to meet the requirements of the FMA and the recently developed Timber Management Planning Manual. It covered the period from April 1st, 1981 to March 31st, 2001. In addition, a number of five-year operating plans were prepared on a regular basis under the overall direction of these management plans.

The earliest commercial logging operations on record for the Black River Forest date back to the 1936-37. However, it is possible that limited logging activity for ties and building timbers took place in the 1880's during the construction of the Canadian Pacific Railway. In 1937, the timber rights were transferred from the

General Timber Company Limited – a pulpwood exporting company – to the Ontario Paper Company (OPC) to help supply the wood fibre required to operate the OPC newsprint mill located in Thorold, Ontario. This mill had operated since 1912. The original license area was expanded in 1949 from about 2000 square kilometers to approximately 2600 square kilometers through the acquisition of area in the northeast corner of the license.

The typical logging operation for most of the period from 1937 to 1964 was the harvesting of mainly spruce and balsam fir pulpwood in shortwood form (four-or eight-foot bolts). The logs were then hauled to the nearest accessible stream and the driving of the logs took place on the spring freshet to the mouth of the Black River. Near the mouth, the logs were de-watered, debarked and flumed overland to a wharf on Heron Bay (on Lake Superior) where they were loaded on lake freighters for delivery to Thorold. This system was discontinued in 1964 and replaced with an overland rail delivery to Thorold.

In the early 1980's, the modernization of the Thorold pulpmill and its conversion to the use of large amounts of recycled pulp resulted in a reduction of shipments of pulpwood to the mill from the Forest. In an attempt to maintain harvesting production levels during what was thought to be a short-term period, sawlogs were produced for sale to Great West Timber's (GWTL) sawmill in Thunder Bay. Following an analysis of fibre requirements by Ontario Paper, it was determined that the Black River Forest was no longer required as a source of wood fibre. As a result, the Forest Management Agreement was assigned to Great West Timber to become part of its wood supply. Since then, the Forest has been operated primarily to supply sawlogs to GWTL and to market other forest products (pulpwood, veneer logs, et cetera) that are produced in the course of normal logging operations. The products are delivered to receiving mills through the use of haul trucks.

Summary of Total Land Area

The forest resource inventory (FRI) used for the preparation of the 1996-2001 and the 2001-2006 plans was from 1988 aerial photographs. For the 2001 plan, the inventory was updated with depletions (harvest and natural), the addition of declared free-to-grow areas (FTG) and the aging of the forest stands to the start of the forest management planning term. The Balsam Fir Working Group was significantly reduced and the Spruce and Poplar Working Groups increased proportionally. The main rationale for the substantial change in the Working Group Areas can be attributed to the inventory photography being taken after the Spruce Budworm Infestation killed the spruce and balsam trees on the forest.

The source of the land data is from Table 4.8.2 in the 1991-1996 and the 1996-2001 FMP. The area stated in Table 1 in working group rows is managed crown

land only. In the term 1996-2001 the managed total production forest (crown land by working group) increased from the 1991-1996 term by 7%. The difference may be associated with the new FRI being in a digital format. In the term 2001-2006 the managed total production forest (crown land by working group) increased from the 1996-2001 term by 1%. These changes in total production forest by term are minimal. The slight increase may be linked to the assessment of B&S and depleted stands prior to the 2001-2006 term.

The FRI used in the development of the 2006-2011 FMP consisted of the 1990 inventory updated to the year 2006 with updates for actual harvest and natural depletions (wildfire, etc.) between the years 1999-2003. In addition all harvest allocations included in the 2001-2006 (which had not occurred yet) were assumed to have taken place and were termed "Forecasted" depletions. Removing both the actual and the forecasted depletions from the base inventory and aging the forest stands resulted in an updated inventory.

Forest Unit Changes Over Time

Table 2 shows the transition between defined working groups and forest units. This makes the transition between the two classification systems transparent to the reader. The source for Table is TMP table 4.11 and FMP Table 8.

The forest units during the three terms have changed and this table displays that point effectively. Subtle changes in forest unit syntax make the comparisons between forest units in different terms problematic.

Summary of Planned and Actual Harvest Volumes

Table 3 reports on the summary of planned and actual volumes harvested for three terms. The source s for table was TMP Table 4.3.1 and FMP Table 23.

In the 2001-2006 term, 120% of the jack pine, 78% of the black spruce, 40% of the balsam, 13% of other conifer, 60% of the poplar and 29% of the birch was reported as actual volume harvested compared to the volume planned. These numbers do not include the volume that was delivered after April 1st, 2006, which would have been cut during the 2001-2006 FMP. The total amount of volume should reflect the total amount of area depleted. During the 1991-1996 TMP the volume percentage of actual vs. planned was 36% in comparison to the actual vs. planned depletion which was 48%. For the period of 1996-2001 TMP, the volume percentage of actual vs. planned was 56% in comparison to the actual vs. planned depletion which was 74%, and for the current term 2001-2006 FMP the volume percentage of actual vs. planned was 83% in comparison to the actual vs. planned depletion which was 110%.

An obvious trend for the three terms is that the total actual volume has not met the planned volume when comparing total volume to total depleted area. This could be associated with inflated yield curves. The second trend is that utilization has increased to over double of ten years ago.

The under achievement of volume in past plans was mainly (planned versus actual) associated with bypass. The poplar under achievement (planned versus actual) was in part due to the fluctuating marketability of the species. The birch working group under achievement (planned versus actual) was due to the lack of marketability of the pulpwood and sawlog portion of the tree.

Summary of Planned and Actual Harvest Depletion Area

In general, the trends in planned versus actual harvest depletion area are similar to the trends in planned versus actual harvest volumes. Discerning trends on a forest unit basis is confounded by changes in forest units and their definition between terms. After several terms utilizing the same forest units, trends between terms will be more apparent and discernable.

For the 1991-1996 and the 1996-2001 terms the harvest area achievement closely mirrors the harvest volume achievement. The actual harvest area versus the planned harvest area was under utilized due to marketability and terrain. During the 2001-2006 term the actual harvest area depleted closely mirrors the actual volume. The actual harvest area is comparable to the planned harvest area. A proactive approach was taken during this term to harvest all available area. Markets for most species were better than pervious terms and were more stable which resulted in less bypass. Also, the road construction practices have changed which makes available hard-to-operate areas that would previously been left as bypass. Eighty-eight percent of the total area forecasted for harvest was depleted. The total area for the term 2001-2006 has not included the depleted area for the 2005-2006 depletion year. Therefore, some of these forest units may be higher after depletion reports are submitted.

Summary of Managed Productive Forest by Forest Unit

The intention of Table 5 is to demonstrate trends in the forest condition in terms of forest unit and age class over time. It's difficult to see changes in forest unit and age class with the information available from past Forest Management Plans annual reports and reports of past forest operations as presented in Table 5 since each of the forest management plan had different strategies and forest units. The land base for each of the three terms changed because of the additions/removals for new parks, exclusion areas, removal of inoperable area and reserves. The information over the three planning periods assessed is based on forest units that were different for each planning term. A comparison of conifer and hardwood over the three terms shows that between the 1991-1996 TMP and the 1996-2001 TMP the conifer species decreases and the hardwood species increase due to the spruce budworm outbreak. During the 1996-2001 and 2001-2006 terms the conifer and hardwood stabilizes. The forest units in comparison to plan objectives which target the historic condition of the Black River Forest are on the right path to meeting these objectives. Overall, the total productive land area decreased due to the removal of habitat reserves and inoperable areas.

There is some actual change in forest condition because of the mortality caused by a spruce budworm outbreak that ended around 1988 and forest

management strategies to deal with the new growth of balsam fir on the Black River Forest. The planning inventory for the 2001 and 2006 FMP shows that balsam fir has been reduced on the Black River Forest because of mortality caused by an earlier spruce budworm outbreak. Observations have shown that balsam fir is re-establishing itself where the mortality has occurred. The planning FRI for the 2006 planning inventory does not reflect the re-establishment of balsam fir because the balsam fir is at a juvenile stage below the upper canopy of forest stands.

Summary Report of Renewal, Tending and Protection Operations

A comparison of planned versus actual renewal operations within terms provides some insight on how the forest is being managed. Planned renewal figures are forecasts of activity based on the level of actual and forecast depletion activity that occurred in the previous planning term and forecasts of depletion activity of the planning term under consideration. Deviations from the forecast levels of depletion activity will directly result in deviations from actual renewal and tending levels. Actual harvest levels varied between 48%, 74% and 88% of planned levels.

Actual natural treatments for past terms closely resemble the percentage harvested that term. During the 2001-06 planning term natural treatments were slightly higher than planned levels. Some of the natural treated areas were scheduled to be treated artificially (PJ1, PJ2 and SP1 stands), but with site visits they were determined to be site prepared and allow natural regeneration to grow. These areas in the near future will be assessed for competition and success of natural regeneration and if they are lacking in trees they will have a supplementary treatment. The initial future forest unit will still be met and the natural treatments will not jeopardize the objectives of the Forest Management Plan.

Artificial treatments in the past terms are similar to planned operations in comparison to harvested percentage. During the 2001-2006 FMP the artificial area treated is lower than planned due to three large harvest areas that were scheduled to be treated. Upon site visits forest operation prescriptions were changed to allow for natural regeneration (as explained earlier).

Mechanical site preparation occurred at 40% of planned levels. The total number in the FMP is a gross area and at the AWS stage that area is reduced. Chemical site preparation was not planned but occurred in two annual work schedules on 1,236 ha. Chemical site preparation is only used on sites where high competition with crop species is anticipated because of existing vegetation, soil and moisture conditions. During the implementation of the 2001-06 FMP, higher than expected areas requiring chemical site preparation were

encountered. Prescribed burn in the form of slash pile burning is used to clear landings of debris and prepare the landing areas for renewal work. There were no planned levels of slash piling. However the MNR has created new reporting requirements whereby slash pile burning is reported based on a net down of gross area to represent actual landing area that was prepared for renewal. The actual net area is 10 ha for the 2001-2006 FMP.

Tending occurred at lower than planned levels for all planning terms at 60%. The under achievement of tending occurred because planned levels are based on gross area. Aerial chemical tending is the preferred treatment for cleaning because it requires fewer resources (manpower), is safer and more cost effective than ground techniques such as manual or chemical ground tending operations. All areas requiring tending were treated aerially for the 2001-06 term.

Harvest Area Successfully Regenerated – Summary of all Forest Units

Table 7 shows that 5,091 hectares were harvested for the 1991-96 period. A comparison of regeneration assessment records for the same area showed that 4,036 hectares have been surveyed and 2,958 hectares were found to be successfully regenerated. Surveys are yet to be completed on 1,009 hectares. The unsurveyed areas include blocks that have been planted, tended, planted with supplemental planting to boost stocking, naturally treated or were burned by wildfire in 1996. These will be assessed in the near future assessment program. Areas that were not surveyed in the original surveys were less than 10 years old and will be reassessed for regeneration success in future.

Conclusion

In conclusion, the harvest area has increased substantially compared to ten years ago. Markets have recovered and stabilized for most species. Forested land over the last ten years after the spruce budworm outbreak shows that the forest species are fairly similar. Total area regenerated naturally and artificially in comparison to the amount of area depleted is reasonably comparable to planned levels.

2001-2006 INDEPENDENT FOREST AUDIT

Management Unit Name: BLACK RIVER FOREST

Table 1 - Summary of Total Area Under Management

			Area in Hectares		
			Past Plans*		Current Plan
Land Class			1991-1996	1996-2001	2001-2006
Unsurveyed					
Non-forested					
70,71	Water		15,885	15,450	15,597
	Other Land		1,684	3,117	
60	Agricultural Land				18
63	Grass & Meadow				9
66	Unclassified				3,700
61,62	Other				
		Subtotal Non-Forested	17,569	18,567	19,324
Forested					
	Non-Productive Forest				
50	Treed Muskeg				3,304
52	Open Muskeg				4,216
54	Brush & Alder				9,166
56	Rock				1,278
		Subtotal Non-Productive	15,147	17,829	17,964
	Productive Forest				
	Protection Forest				
40	Site				2,493
41	Islands				
		Subtotal Protection	4,394	2,528	2,493
	Production Forest				
30	B&S		35,324	17,546	5,416
11-14	Depleted				10,573
20-28	Forest Stands				193,640
	Working Groups				
	Pw				
	Pr				
	Pj		22,094	26,604	27,305
	S		74,849	98,015	99,292
	B		35,859	1,268	1,277
	By				
	Oc		565	1,407	1,393
	Po		19,969	31,064	30,993
	Bw		26,240	33,311	33,358
	Mh				
	H				
Total Production Forest			179,576	191,669	193,618
Total Forested Land			234,441	229,572	230,064

* Past plans did not have break downs for non-forested and forested lands.

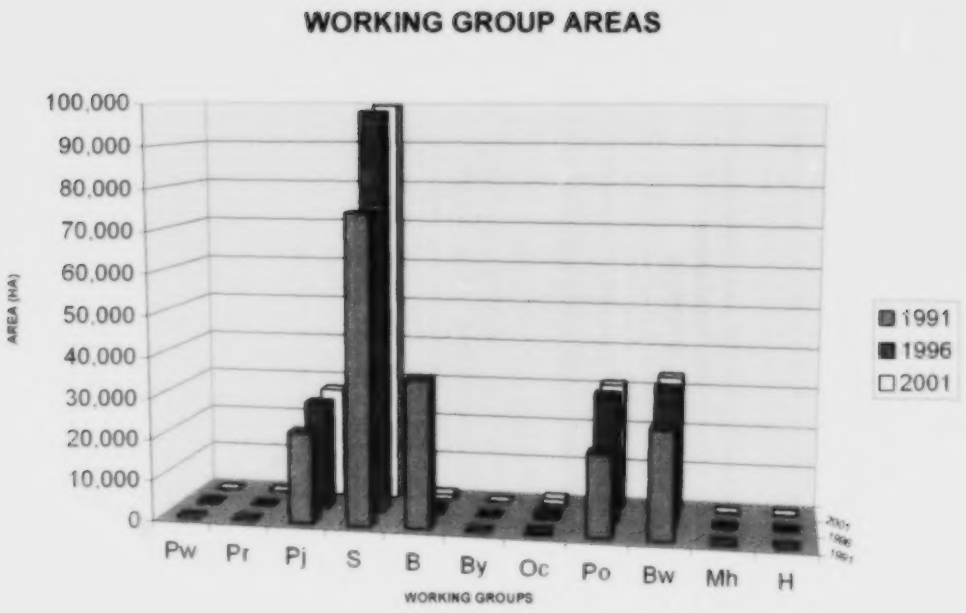

WORKING GROUP AREAS
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
AREA (HA)
Pw
Pr
Pj
S
B
By
Oc
Po
Bw
Mh
H
WORKING GROUPS
1991
1996
2001

Chart 1

2001-2006 INDEPENDENT FOREST AUDIT

Management Unit Name: **BLACK RIVER FOREST**

TABLE 2 - DESCRIPTION OF FOREST UNITS

From the 1991-1996 FMP

Forest Unit		Forest Type	Main Working Group	Site Types	Silvicultural System	FRI Parameters & Criterea	Add. Info.
Code	Name						
Sp-1	Spruce-1	Conifer	Sb		clear cut	all stands in which working group is Spruce and the site class is X,1 or 2	
Sp-3	Spruce-3	Conifer	Sb		clear cut	all stands in which working group is Black Spruce and the site class is 3	
Pj	Jack Pine	Conifer	Pj		clear cut	all stands in which working group is Jack Pine	
Po	Poplar	Intolerant Hardwood	Po		clear cut	all stands in which working group is Poplar	
Bw	White Birch	Intolerant Hardwood	Bw		clear cut	all stands in which working group is Birch	
Bf	Balsam Fir	Conifer	Bf		clear cut	all stands in which working group is Balsam Fir	
OC	Other Conifer	Conifer	Ce		clear cut	all stands in which working group is Cedar or Larch	

2001-2006 INDEPENDENT FOREST AUDIT

Management Unit Name: **BLACK RIVER FOREST**

TABLE 2 - DESCRIPTION OF FOREST UNITS

From the 1996-2001 FMP

Forest Unit		Forest Type	Main Working Grp	SiteTypes	Silvicultural System	FRI Parameters & Criterea	Add. Info.
Code	Name						
BS1	BS1 FOREST UNIT	Conifer	Sp		clear cut, careful log	all stands in which working group is Spruce and the site class is X,1 and 2	
BS3	BS3 FOREST UNIT	Conifer	Sp		clear cut, careful log	all stands in which working group is Spruce and the site class is 3	
						and other conifer working groups all site classes	
JP	JP FOREST UNIT	Conifer	Pj		clear cut	all stands that are more than Jack Pine mixed with any other species	
S	S FOREST UNIT	Conifer	Sp		clear cut	All stands less than 30% Jackpine and less than 30% hardwood species	
						ands less than 80% Spruce	
MA	MA FOREST UNIT	Mixwood	Po		clear cut	all stands that has less than 30% jack pine and between 30% and 60% hardwood	
						in which poplar accounts for more than one-half of the hardwood	
MB	MB FOREST UNIT	Mixwood	Bw		clear cut	all stands that has less than 30% jack pine and between 30% and 60% hardwood	
						in which White Birch accounts for more than one-half of the hardwood	
PO	PO FOREST UNIT	Intolerant Hardwood	Po		clear cut	all stands in which working group is Poplar which are less than 30%	
						Jack Pine and more than 60% hardwood species	
BW	BW FOREST UNIT	Intolerant Hardwood	Bw		clear cut	all stands in which working group is White Birch which are less than 30%	
						Jack Pine and more than 60% hardwood species	
IS	IS FOREST UNIT	Conifer	Sb		clear cut	all stands in which working group is conifer that are identified as Inoperable	
IH	IH FOREST UNIT	Intolerant Hardwood	Bw		clear cut	all stands in which working group is hardwood that are identified as Inoperable	

2001-2006 INDEPENDENT FOREST AUDIT

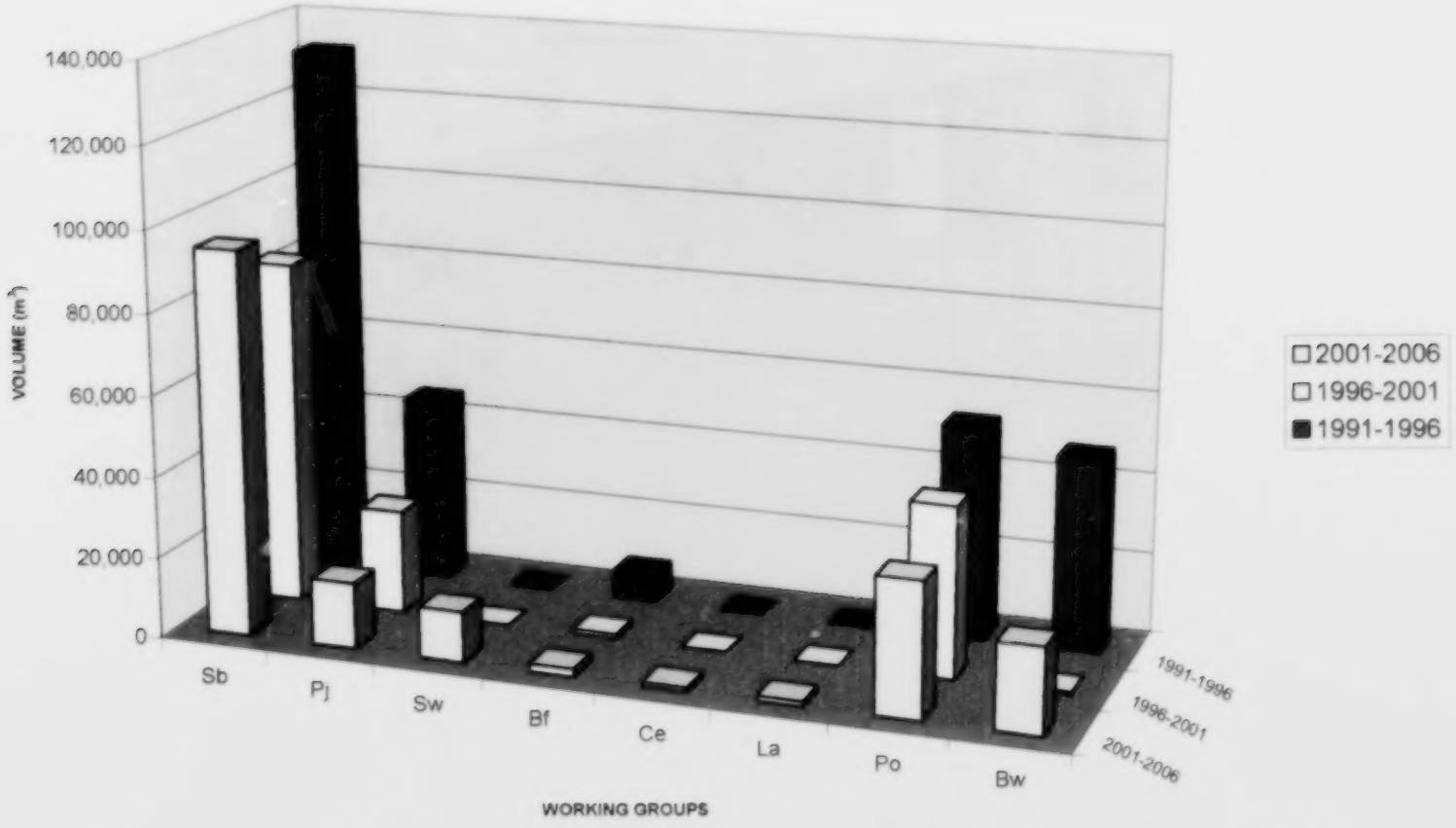
Management Unit Name: **BLACK RIVER FOREST**

TABLE 2 - DESCRIPTION OF FOREST UNITS

From the 2001-2006 FMP

Code	Forest Unit Name	Forest Type	Main Working Group	Ecological Site types	Silvicultural System	FRI Parameters & Criteria	Additional Information
SBOG	Spruce Bog	Conifer	Sb	13	N/A	Sb + La> = 0.7 and S.C. = 4	Sb 9La 1
SB1	Black Spruce	Conifer	Sb	5,6,8,9,11,12,13	Clearcut	Sb>=0.7 and Pj<=0.1	Sb 8Bw 1Po 1
PJ1	Jack Pine	Conifer	Pj	2,3,4,11,10,5	Clearcut	Pj>=0.7 and Po+Bw<=0.2	Pj 8Sb 1Po 1
LC1	Lowland Conifer	Conifer	Sb	11,12,13	Clearcut	Ce+La+Sb>=0.8 and Pj<=0.1	Sb 5Ce 3La 1Bw 1
PJ2	Pine/Spruce Mixed	Conifer	Pj	2,3,4,10,11	Clearcut	(Pj+Sb>=0.7 or (Pj>=0.5 and Pj+Sb+Bf+Sw+Ce+La>=0.7 and Bf+Sw+Ce+La<=0.2)) and Pj>=Sb	Pj 6Sb 3Po 1
SP1	Spruce/Pine Mixed	Conifer	Sb	3,5,11	Clearcut	Sb+Sw+Bf+Pj+Ce+La>=0.7 and (Bf+Ce+La+Sw<=0.2 and Pj >= 0.3)	Sb 6Pj 3Po 1
SF1	Spruce/Fir	Conifer	Sb	6,8,9,3,5,11	Clearcut	Sb+Sw+Bf+Ce+La+Pj>=0.7	Sb 5Sw 2Bw 1Bf 1Po 1
PO1	Poplar	Intolerant hardwood	Po	10,6,3,7,1	Clearcut	Po+Bw>=0.7 and Po>=0.5	P0 7Bw 2Sb 1
BW1	White Birch	Intolerant hardwood	Bw	1,11,10,3,6,7,8,9	Clearcut	Po+Bw>=0.7	Bw 6Po 2Sb 1Sw 1
MW1	Mixedwood Pine	Mixedwood	Po	1,10,11,2,3	Clearcut	Pj>=0.2	Pj 3Po 3Bw 2Sb 2
MW2	Mixedwood Spruce	Mixedwood	Po	1,10,11,9,6	Clearcut	Sb+Sw>=0.2 or Po+Bw>=0.2	Bw 3Sb 3Po 2Sw 1Bf 1

PLANNED HARVEST VOLUMES



ACTUAL ANNUAL HARVEST

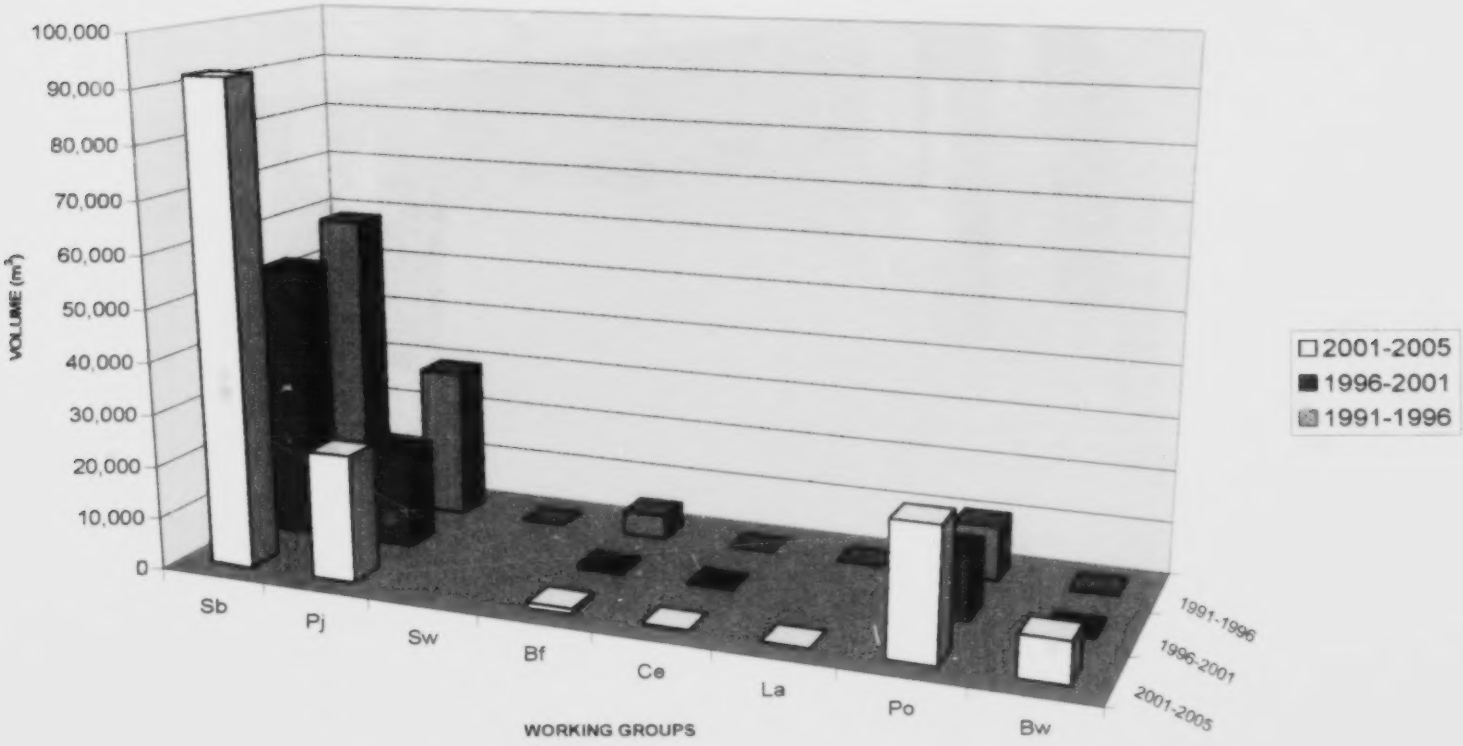


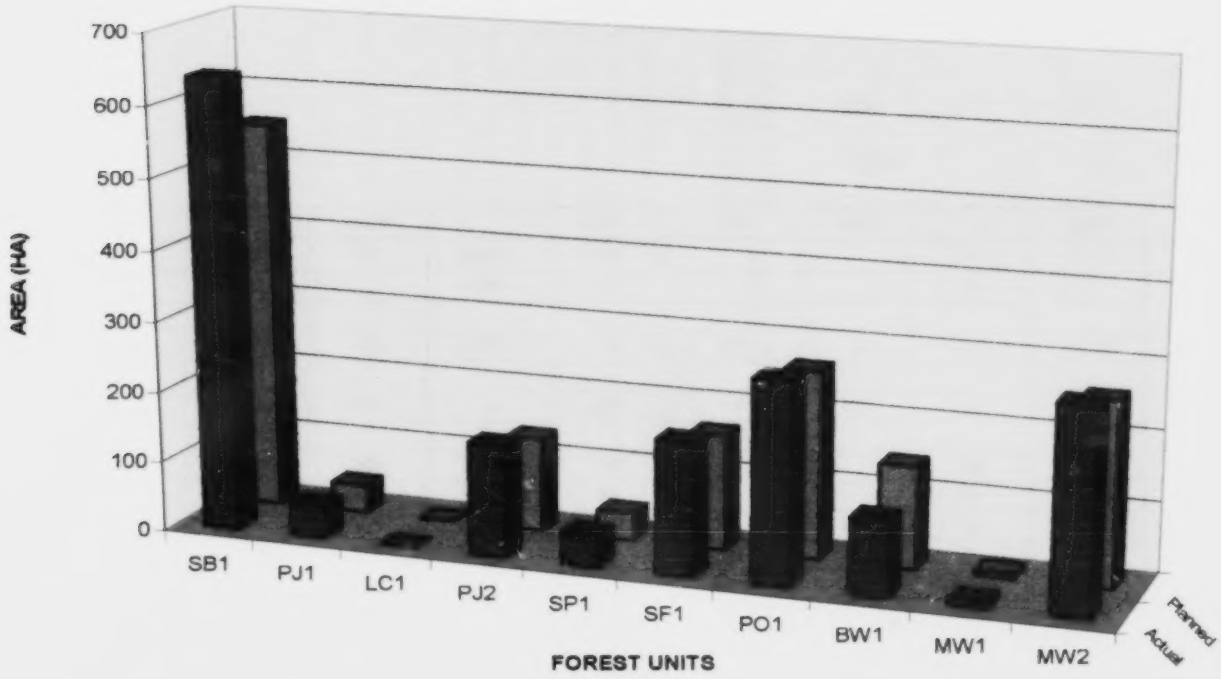
Table 4 -Summary of Planned & Actual Area

Planned Annual Harvest Area (ha)						Actual Harvest Area					
Past Plans				Current Plan		Past Plans				Current Plan	
Forest Units	1991-1996	Forest Unit	1996-2001	Forest Unit	2001-2006	Forest Units	1991-1996	Forest Unit	1996-2001	Forest Unit	2001-2005
Sp_1	808	BS1	474	SB1	550	Sp_1	498	BS1	311.8	SB1	638
Sp_3	90	BS3	14	PJ1	40	Sp_3	50	BS3	5.6	PJ1	47
Bf	546	S	120	LC1	0	Bf	118	S	79	LC1	0
Pj	288	JP	294	PJ2	133	Pj	188	JP	194	PJ2	159
		MA	110	SP1	39			MA	63.4	SP1	47
		MB	268	SF1	163			MB	145.8	SF1	188
O.C.	5					O.C.	1				
Po	181	PO	323	PO1	265	Po	107	PO	160.4	PO1	285
Bw	166	BW	105	BW1	144	Bw	47	BW	40.8	BW1	107
		IS	17	MW1	8			IS	7.4	MW1	9
		IH	33	MW2	259			IH	10.4	MW2	286
Total	**2083**		**1758**		**1601**	**Total**	**1009**		**1018**		**1764**
							5045		5091		8821
							48%		58%		110%

Actual

Planned

PLANNED VERSUS ACTUAL ANNUAL HARVEST AREA
2001-2006 FMP



2001-2006 INDEPENDENT FOREST AUDIT

Management Unit Name: BLACK RIVER FOREST

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

1991-1996 from the 1991 Timber Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
Sp-1	1-20						235	
	21-40						7,600	
	41-60						9,044	
	61-80						13,393	
	81-100						12,793	
	101-120						13,227	
	121+						10,379	
	Subtotal						66,671	

1991-1996 from the 1991 Timber Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
Sp-3	1-20						0	
	21-40						1,595	
	41-60						165	
	61-80						636	
	81-100						614	
	101-120						2,228	
	121+						2,941	
	Subtotal						8,179	

1991-1996 from the 1991 Timber Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
Pj	1-20						416	
	21-40						5,587	
	41-60						9,370	
	61-80						5,988	
	81-100						257	
	101-120						453	
	121+						23	
	Subtotal						22,094	

1991-1996 from the 1991 Timber Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
Bf	1-20							
	21-40						1,940	
	41-60						9,652	
	61-80						15,207	
	81-100						6,967	
	101-120						1,420	
	121+						673	
	Subtotal						35,859	

1991-1996 from the 1991 Timber Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
Po	1-20						0	
	21-40						420	
	41-60						3,751	
	61-80						8,362	
	81-100						3,254	
	101-120						3,476	
	121+						706	
	Subtotal						19,969	

1991-1996 from the 1991 Timber Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
Bw	1-20						0	
	21-40						1,241	
	41-60						7,941	
	61-80						5,742	
	81-100						4,576	
	101-120						6,090	
	121+						650	
	Subtotal						26,240	

1991-1996 from the 1991 Timber Management Plan

Working Group	Age Class	Protection Forest (ha)	m3	Production Forest Unavailable (ha)	Unavailable m3	Stage of Management	Available (ha)	Available m3
	B+S							
O.C.	1-20						0	
	21-40						0	
	41-60						3	
	61-80						22	
	81-100						54	
	101-120						171	
	121+						315	
	Subtotal						565	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest (ha)	m3	Production Forest Unavailable (ha)	Unavailable m3	Stage of Management	Available (ha)	Available m3
	B+S							
BS1	1-20						3,913	
	21-40						4,270	
	41-60						14,361	
	61-80						5,122	
	81-100						5,435	
	101-120						7,092	
	121+						5,096	
	Subtotal						45,289	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest (ha)	m3	Production Forest Unavailable (ha)	Unavailable m3	Stage of Management	Available (ha)	Available m3
	B+S							
BS3	1-20						6	
	21-40						102	
	41-60						620	
	61-80						306	
	81-100						1,267	
	101-120						1,308	
	121+						905	
	Subtotal						4,514	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
JP	1-20						6,306	
	21-40						3,107	
	41-60						12,400	
	61-80						9,173	
	81-100						759	
	101-120						1,468	
	121+						422	
	Subtotal						33,635	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
S	1-20						2,040	
	21-40						3,191	
	41-60						6,784	
	61-80						2,020	
	81-100						1,575	
	101-120						1,688	
	121+						537	
	Subtotal						17,835	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
MA	1-20						1,455	
	21-40						2,166	
	41-60						4,490	
	61-80						3,115	
	81-100						1,659	
	101-120						1,709	
	121+						355	
	Subtotal						14,949	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest (ha)	m3	Production Forest Unavailable (ha)	Unavailable m3	Stage of Management	Available (ha)	Available m3
	B+S							
MB	1-20						1,376	
	21-40						2,689	
	41-60						6,986	
	61-80						4,400	
	81-100						4,102	
	101-120						2,417	
	121+						346	
	Subtotal						22,316	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest (ha)	m3	Production Forest Unavailable (ha)	Unavailable m3	Stage of Management	Available (ha)	Available m3
	B+S							
PO	1-20						1,273	
	21-40						1,530	
	41-60						5,439	
	61-80						10,084	
	81-100						1,558	
	101-120						2,911	
	121+						293	
	Subtotal						23,088	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest (ha)	m3	Production Forest Unavailable (ha)	Unavailable m3	Stage of Management	Available (ha)	Available m3
	B+S							
BW	1-20						632	
	21-40						1,189	
	41-60						5,196	
	61-80						3,505	
	81-100						2,970	
	101-120						2,234	
	121+						106	
	Subtotal						15,832	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
IS	1-20						805	
	21-40						257	
	41-60						2,898	
	61-80						1,000	
	81-100						806	
	101-120						890	
	121+						313	
	Subtotal						6,969	

1996-2001 from the 1996 Forest Management Plan

Working Group	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	m3	(ha)	m3		(ha)	m3
	B+S							
IH	1-20						5	
	21-40						354	
	41-60						2377	
	61-80						2381	
	81-100						1716	
	101-120						409	
	121+							
	Subtotal						7242	

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(.000 m3)	(ha)	(.000 m3)		(ha)	(.000 m3)
SB1	B&S			3,883	0			
	1-20			201	0		9,140	0
	21-40			194	0		3,492	0
	41-60		0	781	131,208		5,649	412,377
	61-80		0	1,569	374,991		12,309	1,489,389
	81-100			642	175,908		4,004	716,716
	101-120		0	842	191,134		5,098	1,141,952
	121-140		0	1,302	235,662		10,288	2,129,616
	141-160			60	0		1,184	197,728
	161+						85	11,730
	Subtotal	0	0	9,474	1,108,903		51,249	6,099,508

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(,000 m3)	(ha)	(,000 m3)		(ha)	(,000 m3)
PJ1	B&S			248	0			
	1-20			100	0		3,565	0
	21-40			92	9,752		2,598	197,448
	41-60			126	23,058		1,630	340,670
	61-80		0	411	90,420		7,570	2,157,450
	81-100			16	3,552		245	77,175
	101-120			11	2,090		76	22,040
	121-140			17	2,431		213	34,080
	141-160							
	161+							
	Subtotal	0	0	1,021	131,303		15,897	2,828,863

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(,000 m3)	(ha)	(,000 m3)		(ha)	(,000 m3)
LC1	B&S							
	1-20							
	21-40			3	0		107	0
	41-60			32	0		267	534
	61-80			129	0		1,072	12,864
	81-100			29	0		322	21,252
	101-120	13	0	64	0		606	80,598
	121-140			60	0		401	67,368
	141-160	20	0	5	0		64	10,880
	161+							
	Subtotal	33	0	322	0		2,839	193,496

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(,000 m3)	(ha)	(,000 m3)		(ha)	(,000 m3)
PJ2	B&S							
	1-20			52	0		871	0
	21-40			352	0		1,248	51,168
	41-60		0	322	0		795	80,295
	61-80		0	321	0		4,019	610,888
	81-100			79	0		180	34,740
	101-120			26	0		112	22,288
	121-140			67	0		444	62,604
	141-160							
	161+							
	Subtotal	0	0	1,219	0		7,669	861,983

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(,000 m3)	(ha)	(,000 m3)		(ha)	(,000 m3)
PO1	B&S			320	0			
	1-20			12	0		809	0
	21-40			45	0		1,196	58,604
	41-60			43	0		1,231	205,577
	61-80			702	0		11,281	2,820,250
	81-100			426	0		2,696	504,152
	101-120			192	0		1,260	341,460
	121-140			250	0		2,309	251,681
	141-160							
	161+						2	
	Subtotal	0	0	1,990	0		20,784	4,181,724

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(,000 m3)	(ha)	(,000 m3)		(ha)	(,000 m3)
BW1	B&S			534	0			
	1-20			5	0		570	0
	21-40			62	0		949	11,388
	41-60		0	214	0		1,638	194,922
	61-80	14	0	1,791	0		6,409	1,493,297
	81-100	115	0	1,177	0		1,793	554,037
	101-120	108	0	1,029	0		2,970	1,006,830
	121-140			337	0		2,722	890,094
	141-160						51	13,923
	161+							
	Subtotal	237	0	5,149	0		17,102	4,164,491

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(,000 m3)	(ha)	(,000 m3)		(ha)	(,000 m3)
MW1	B&S							
	1-20			5	0		519	0
	21-40			590	0		1,333	0
	41-60			195	0		325	45,825
	61-80		0	171	0		3,252	507,312
	81-100			33	0		150	42,450
	101-120			5	0		167	45,090
	121-140			9	0		424	98,368
	141-160							
	161+							
	Subtotal	0	0	1,008	0		6,170	739,045

2001-2006 from the 2001 Forest Management Plan

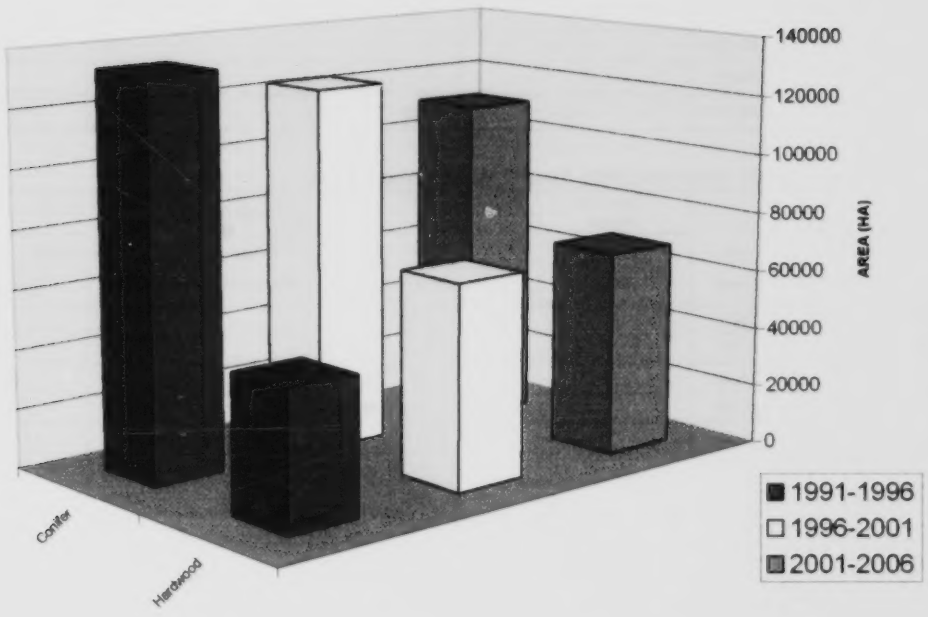
Forest Unit	Age Class	Protection Forest (ha)	Protection Forest (.000 m3)	Production Forest Unavailable (ha)	Production Forest Unavailable (.000 m3)	Stage of Management	Production Forest Available (ha)	Production Forest Available (.000 m3)
MW2	B&S							
	1-20		0	50	0		2.188	0
	21-40			70	0		1.491	11.928
	41-60	35	0	265	0		3.304	413.000
	61-80	606	0	1.401	0		7.421	1.469.358
	81-100	72	0	1.412	0		3.224	715.728
	101-120	60	0	1.233	0		4.364	898.984
	121-140	81	0	329	0		2.698	493.734
	141-160						30	4.980
	161+							
	Subtotal	854	0	4.760	0		24.720	4.007.712

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest (ha)	Protection Forest (.000 m3)	Production Forest Unavailable (ha)	Production Forest Unavailable (.000 m3)	Stage of Management	Production Forest Available (ha)	Production Forest Available (.000 m3)
SF1	B&S			426				
	1-20			104	0		4.185	0
	21-40			97	0		2.355	65.940
	41-60		0	442	0		3.817	347.347
	61-80		0	1.171	0		9.076	1.524.768
	81-100	11	0	503	0		3.054	729.906
	101-120			266	0		2.021	553.754
	121-140			736	0		2.470	560.690
	141-160			0	0		24	4.344
	161+							
	Subtotal	11	0	3.745	0		27.002	3.786.749

2001-2006 from the 2001 Forest Management Plan

Forest Unit	Age Class	Protection Forest (ha)	Protection Forest (.000 m3)	Production Forest Unavailable (ha)	Production Forest Unavailable (.000 m3)	Stage of Management	Production Forest Available (ha)	Production Forest Available (.000 m3)
SP1	B&S							
	1-20			12	0		653	0
	21-40			141	0		590	15.930
	41-60		0	204	0		1.244	131.864
	61-80		0	279	0		3.156	577.548
	81-100			170	0		137	30.140
	101-120			65	0		213	47.286
	121-140			104	0		476	90.440
	141-160			1	0		18	2.574
	161+							
	Subtotal	0	0	976	0		6.487	895.782


FOREST SPECIES GROUP
140000
120000
100000
80000
60000
40000
20000
0
AREA (HA)
Conifer
Hardwood
1991-1996
1996-2001
2001-2006

2001-2006 INDEPENDENT FOREST AUDIT

Management Unit Name: BLACK RIVER FOREST

Table 6-Summary Report of Renewal, Tending and Protection Operations

	Area by Future Forest Unit (ha)					
Renewal	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
	1991-1996		**1996-2001**		**2001-2006***	
Regeneration						
Uneven-Aged Management						
Selection Cut - Harvest						
Total Uneven-Aged Management						
Even-Aged Management						
Natural Regeneration	3,013	1,794	2,033	1,384	4,533	6,500
Clearcut						
Strip Cut	82					
Seed Tree Cut/Careful Logging	26		1,173	1,061		
Uniform Shelterwood Seed Cut						
Subtotal Natural	108		1,173	2,445	4,533	6,500
Artificial Regeneration						
Planting	6,510	4,140	2,741	2,455	3,260	1,340
Seeding direct	500		391			
with site preparation						
Scarification						
Subtotal Artificial	7,010	4,140	3,132	2,455	3,260	1,340
Total Even-Aged Management	7,118	4,140	4,305	4,900	7,793	7,840
Total Regeneration	**7,118**	**4,140**	**4,305**	**4,900**	**7,793**	**7,840**
Site Preparation						
Mechanical	7,010	2,470	3,923	2,441	3,261	1,296
Chemical	2,004	114	500	169		1,236
Prescribed Burn	725		529			
Total Site Preparation	**9,739**	**2,584**	**4,952**	**2,610**	**3,261**	**2,532**

Tending							
Cleaning							
	manual	107					
	chemical - ground		40				
	- aerial	6,000	3,856	3,991	2,294	3,254	1,971
	mechanical						
	prescribed burn						10
	Total Tending	6,107	3,896	3,991	2,294	3,254	1,981
Protection							
	pest control	Ground					
		Aerial					
	Total Protection						
Spacing, pre-commercial thinning, improvement cutting							
	even-aged						
	uneven-aged						
Cultivation							

*Four years of actural reported activities and one year of unreported actual activities

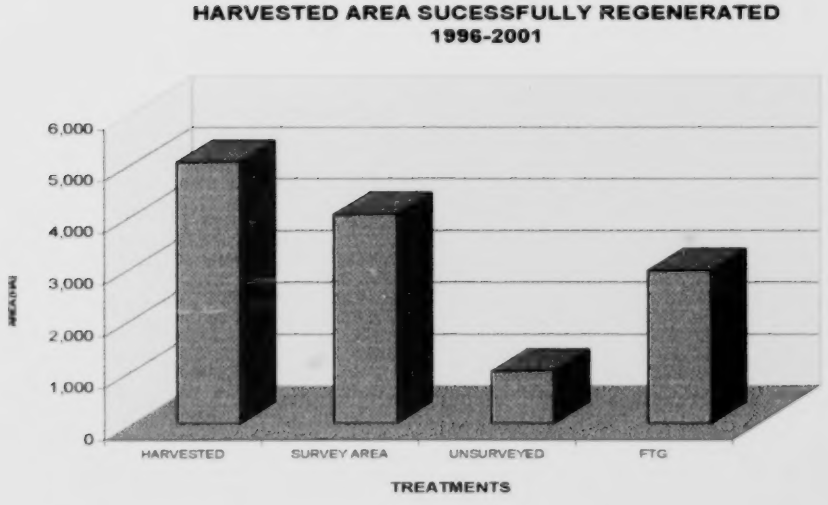
2001-2006 INDEPENDENT FOREST AUDIT

Management Unit Name: **BLACK RIVER FOREST**

Table 7-Harvest Area Sucessfully Regenerated

Summary of All Forest Units

	AREAS IN HECTARES (All Forest Units Combined)
Total Area Harvested	5,045
Total Area Surveyed for Regeneration Success	4,036
Total Unsurveyed Area	1,009
Total Area Declared FTG	2,958
Total Area Surveyed not FTG	1,078
NSR	1,070
B&S	0
Not Available for Regen.	8
Percent off Area Surveyed Declared for FTG	73



APPENDIX B

AUDIT TEAM MEMBERS AND QUALIFICATIONS

The audit team members consisted of:

David Barker, Team leader, lead auditor
Fred Dewsberry, Auditor, forest management planning
Rob Foster, Audit Specialist, fish, wildlife, and habitat
Bill Murphy, Auditor, planning and operations

Dave Barker, MSc., R.P.F. (BC, Ont.), CEA (SFM) Lead Auditor

David Barker has over 30 years of forestry experience and has been undertaking forest practices auditing since 1987. He participated in the first compliance audits of the BC Forest Practices Board in 1996. Dave has assisted both forest companies and government in developing environmental management systems (EMS) to comply with ISO14001. In addition, he has led or participated in EMS implementation audits. Dave has audited against CSA (SFM), SFI, and FSC standards. Mr. Barker is a member of the Canadian Environmental Auditing Association and the Forest Stewardship Council. He participated in the review of the FSC BC regional standards and has performed an accreditation audit of a US certifying agency. This agency has performed certifications in Ontario in the boreal spruce region.

Since 1993 Dave has participated in over 60 forestry audits of various types in British Columbia and *Independent Forest Audits* in Ontario in 2000 and 2002, either as a team leader or senior auditor. His experience covers audit design and planning, risk assessment, office and field evidence evaluation and reporting. Audits have ranged from assessing compliance to the BC Forest Practices Code and other government legislation, to analyses regarding the effectiveness of management activities and forest practices impacts on the environment. He has been an instructor on forest auditing and the Forest Practices Code at the Institute of Forest Engineering of BC. Dave has extensive experience in public consultation, and in working with First Nations on forestry job creation, silviculture and development initiatives.

Fred Dewsberry, R.P.F. (Ont.), Auditor: planning

Fred Dewsberry has over 15 years experience in Ontario's forest industry. During 2000 and 2002, Fred was an auditor responsible for both operational and forest management planning audit tasks for the IFA process on three Forests.

Mr. Dewsberry has extensive experience with the planning process in Ontario at provincial, regional, and district (operational) levels. He has not only reviewed numerous forest management plans and provided training, but has also been responsible for planning and oversight of all forest management activities including annual work schedules and reports, compliance monitoring, forest management plan amendments, silviculture prescriptions/contracts, and operator performance reviews on a Crown Management Unit. Current work includes implementation of the Forest Information Manual requirements, forestry database administration, and professional forestry consulting. He has expert skills with forestry data, geographic information systems, and wood supply modeling.

Prior to joining the private sector, Fred was directly involved with the development of the Timber Management Planning Manual for Crown Lands in Ontario (1985) and the Forest Management Planning Manual for Ontario's Crown Forests (1996).

Robert Foster, Ph.D. Audit Specialist, Fish, Wildlife and Habitat

Robert Foster is co-founder and principal of Northern Bioscience, an ecological consulting firm offering professional consulting services supporting ecosystem management, planning, and research. Based in Thunder Bay, his primary focus has been in boreal ecosystems and Great Lakes / St. Lawrence forests, with additional experience in the tropics. Dr. Foster has over a decade of research and work experience in northern Ontario on a variety of projects with direct or indirect links to forest management planning. For example, Rob has investigated herbicide impacts on crop trees, competing vegetation and small mammal communities. He has undertaken spatial analysis of marten and peregrine falcon habitat and conducted pre-harvest surveys for rare plants and other non-timber values. Rob identified moose aquatic feeding areas from aerial photographs; and developed a fisheries management plan for the Vermilions Lakes System. Rob played a lead role in the analysis and development of both the ecosite and wetland ecosystem classifications for northwestern Ontario.

Since 2000, Dr. Foster has been a biologist on four Independent Forest Audits (IFA) and one Sustainable Forestry Initiative (SFI) audit in Ontario. Rob has undertaken Smartwood lead auditor training for Forest Stewardship Council (FSC) auditing, and was the ecologist for a FSC audit of two Ontario SFLs using the FSC national boreal standard and the draft Great Lakes / St. Lawrence standard. He also served as the ecologist on a multi-disciplinary team field-testing the draft FSC boreal standards.

Bill Murphy, R.P.F. (Ont.) Auditor, Planning and operations

Bill Murphy has obtained the knowledge and practical skills over the past 30 years to conduct an independent audit to professional standards. In 2000, Bill was an auditor with the team that completed three independent audits of the Spanish River and Upper and Lower Spanish SFLs near Espanola, Ontario and on the team for the independent audit of the Crossroute Forest during 2002.

His forestry knowledge includes costing of projects for bid and budget purposes, all aspects of road construction, the assessment, inventory and marking of timber and the eventual planning and cutting for markets. He is familiar with forest renewal activities including planting, scarification, spacing of juvenile stands, and herbicide applications.

Prior to forming his consulting business in 1995, Bill was an Area Forester in charge of all facets of administration in the Black Sturgeon Forest. Mr. Murphy has worked with First Nations for the past decade and for three years had assisted Whitesand Forestry with the start and management of their operations. He is a certified compliance inspector # 311 certified in all aspects of compliance including the FOIP and FOCIS inspections. He is presently working with Forest Renewal Co-op, which is a research co-op specializing in tree seedling research. He is comfortable dealing with all levels of government in the regional area of Thunder Bay. Bill has

been a guest lecturer talking on silviculture activities with both Lakehead University and Confederation College and taught a forest harvesting course at the university level. In his present job as general manager of the co-op, he is acting as a local delivery agent for the Forest 2020 project and is working with scarification, planting and spraying contractors.

APPENDIX C

INDEPENDENT FOREST AUDIT GUIDING PRINCIPLES

The Eight Principles within the Audit Protocol

1. **Commitment**
   Commitment is reflected in vision, mission and policy statements of the Company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.

2. **Public Participation**
   The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizens Committee, native groups, and other parties with an interest in the operations of the forest unit.

3. **Forest Management Planning**
   The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.

4. **Plan Implementation**
   Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.

5. **System Support**
   System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.

6. **Monitoring**
   the activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.

7. **Achievement of the Management Objectives and Forest Sustainability**
   Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.

8. **Contractual Obligations**
   The licensee must comply with the specific requirements of the SFL.

APPENDIX D

LIST OF ACRONYMS

LIST OF ACRONYMS

AHA	Available harvest area
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
B&S	Barren and Scattered
Bf	Balsam fir
Bw	White birch
Ce	Cedar
CFSA	Crown Forest Sustainability Act
CSA	Canadian Standards Association
EA	Environmental Assessment
FIM	Forest Information Manual
FFC	Forest Futures Committee
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FOIR	Forest operations inspection report
FOP	Forest operations prescription
FRI	Forest Resource Inventory
FTG	Free-to-Grow
FU	Forest unit
GIS	Geographic information system
IFAPP	2006 Independent Forest Audit Process and Protocol
La	Larch
LCC	Local Citizens Committee
MNR	Ministry of Natural Resources
NRVIS	Natural Resource Values Information System
NSR	Not Satisfactory Regenerated
NBIR	Native Background Information Reports
OPFA	Ontario Professional Foresters Association
OWHAM	Ontario Wildlife Habitat Analysis Model
Pj	Jack pine
Po	Poplar
Pw	White Pine
PRDC	Pic River Development Corporation
RMA	Resource Management Agreement
R.P.F.	Registered Professional Forester
RPFO	Report of Past Forest Operations
SAR	Species at Risk
Sb	Black spruce
SEIM	Socioeconomic Impact Model
SFL	Sustainable Forest Licence
SFM	Sustainable Forest Management
SFMM	Strategic Forest Management Model
SGR	Silviculture Ground Rules
SEV	Statement of Environmental Values
Sp	Spruce
SPA	Special Purpose Account
Sw	White spruce
TMP	Timber Management Plan
TMPM	Timber Management Planning Manual
WG	Working Group

APPENDIX E

SUMMARY OF INPUT TO AUDIT PROCESS

SUMMARY OF INPUT TO AUDIT PROCESS

GENERAL PUBLIC / OTHER STAKEHOLDERS

Before and during the audit, advertisements were placed in Thunder Bay and local papers. Over 300 letters were mailed to local people (100% of the MNR list), organizations and stakeholders advising that the audit was taking place and inviting comment. The list of names and addresses were obtained from the MNR. The list was a print out from their forest management planning public information database. No responses were received.

During the audit, interviews were held with two tourism businesses, four local citizens, and two trappers. Some of these individuals had been providing regular input to either the LCC or to the planning team.

FIRST NATIONS

There were two First Nation reserves near the boundary of the Black River Forest: Pic River to the southwest and Pic Mobert to the southeast. The MNR made repeated attempts to involve both Bands in forest management planning. Pic River was active throughout the audit period, while Pic Mobert only became interested starting in 2003. MNR files indicated that reserve members attended all the First Nation open houses for planning for the 2006 FMP and had opportunity to view AWS. The audit team interviewed one representative in person from each reserve. Interviews were conducted with MNR staff responsible for First Nation liaison, both in Manitouwadge and in Wawa. Files and contact logs were reviewed that verified contacts made during the audit period. These communications consisted of phone calls, faxes, in-person visits and face-to-face meetings.

Band representatives indicated that the MNR and the Company involved them in planning. Both expressed a desire to increase the current level of economic forest activity of their members on the Forest. One commented on the complexity of the planning process and that it was difficult to learn about this so that meaningful discussion could take place. The representative did indicate that the MNR were training native staff to understand the planning process.

LOCAL CITIZENS COMMITTEE

Five out of 17 members of the LCC were interviewed in order to determine their participation and receive input as to how well the committee was functioning. These interviewees were chosen because they were not in the forest industry. Topics discussed included the role and effectiveness of the LCC, makeup, fairness, openness, structure, participation in the forest management planning process, and accessibility to the community, among others. The audit team attended an LCC meeting. One member of the LCC was an observer during the field audit and accompanied the auditors each day.

OVERLAPPING LICENSEE

An interview was held with the representative of the one overlapping licensee. Some of his principal concerns included increasing timber supply for the Ojibways of the Pic River First Nation, more Band involvement in forest management activities and receiving a fair share of Crown funds for road maintenance. The Band's management company, PRDC carried out maintenance; however because the road was secondary, the Band was not eligible for reimbursement in 2005. Secondary roads were eligible in 2006.

PRDC had operations exclusively in the Cache Lake area, in the southern area of the forest. In general, few differences existed in forest practices between this licensee and the Company. The Band was involved with planning for forest management activities through the PRDC.

COMMITMENT HOLDERS

Interviews were conducted with three of the four commitment holders. MNR TREES harvest records were reviewed. Roundwood commitments were honoured to the extent possible and in a fair manner given the reduction in actual vs. planned harvest. Marathon Pulp received chips in place of the roundwood commitment.

PRINCIPAL CONTRACTOR

The audit team conducted interviews with the principal contractor's owner, foreman and an operator. Issues discussed were compliance, equipment, rates of cut, mechanical site preparation, harvest issues, protection of AOCs, and road maintenance.

SFL HOLDER

Interviews were held with six Company staff at the head office in Thunder Bay and six at Manitouwadge office. The audit team members were each accompanied by one staff member during the audit. The high level of cooperation assisted the auditors to review all the field areas and complete the audit of documents and records. The Company prepared considerable background information as per the IFAPP requirements and provided office space for the auditors. The Company prepared the 26 audit sample packages and the MNR supplied compliance reports on the blocks. The Company participated fully in audit planning, reporting, and the opening and closing meetings.

MINISTRY OF NATURAL RESOURCES

Six current and two former MNR staff participated, either as interviewees or by accompanying the auditors in the field. One Forest Management Branch staff accompanied the team for part of the field audit. The MNR prepared background information as per the IFAPP requirements, allowed access to records and reports, provided assistance, and contributed a wealth of on-site information. The MNR participated fully in audit planning, reporting, and the opening and closing meetings.